2 University Planning Strategy

This chapter introduces the Planning Strategy and design guidelines for the Corridor.

F2.1

The Combined Pedestrian Realm/ Mobility/ Land Development Concept Plan

The diagram on the facing page illustrates the combined Pedestrian Realm/Mobility/Land Development Concept Plan for the University Corridor. The Plan for the University Corridor illustrates broader elements of the corridor that will eventually result in development directly related to transit and connections to the surrounding neighborhood on key streets.

The distinguishing characteristic of the University Corridor is in the diversity of the existing conditions. The Corridor is comprised of three distinct areas.

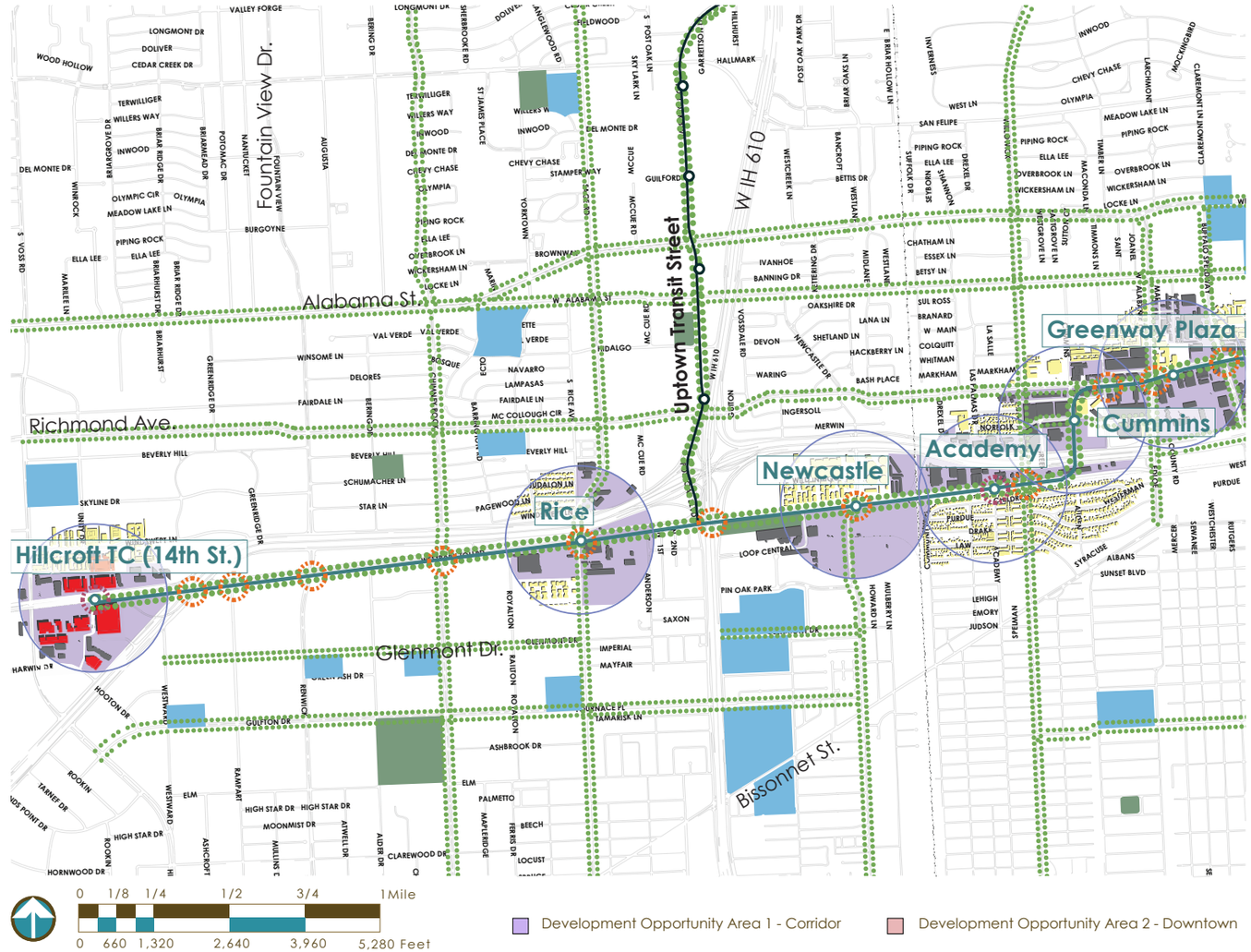
The eastern end of the Corridor extends from the Eastwood Transit Center to the Wheeler/Main Station. The University of Houston and Texas Southern University are a natural draw for the community and provide an important bank of transit users. The proposed station locations are closely spaced and development opportunities exist at the stations as well in several intersections along the route. An important portion of the Transit Street runs through a closely-knit residential area that needs to have special design consideration to provide the proper scale and landscape to enhance the neighborhood.

The middle segment of the Corridor is located on Richmond Avenue, from the Wheeler/Main Station to Cummins, in an area that currently has some mixed use development in place and is seeing more in the Upper Kirby area. Station locations are located within ¼ mile of each other, providing the opportunity for a continuous pedestrian environment. This part of the Transit Street is the narrowest and creative approaches to developing a consistent pedestrian realm will be necessary.

The western end of the Corridor is located on Westpark, from Cummins to the Hillcroft Transit Center. Westpark Drive is a major street that is not at a pedestrian scale. The size of the street coupled with widely spaced station locations will not provide an ideal environment for pedestrians. In this area the pedestrian realm will be scaled to fast moving traffic and lengthy crossing times. There is the need to consider closer spacing for the stations over time. The Hillcroft Transit Center is an appropriate location for Transit Oriented Development and major park and ride facilities.

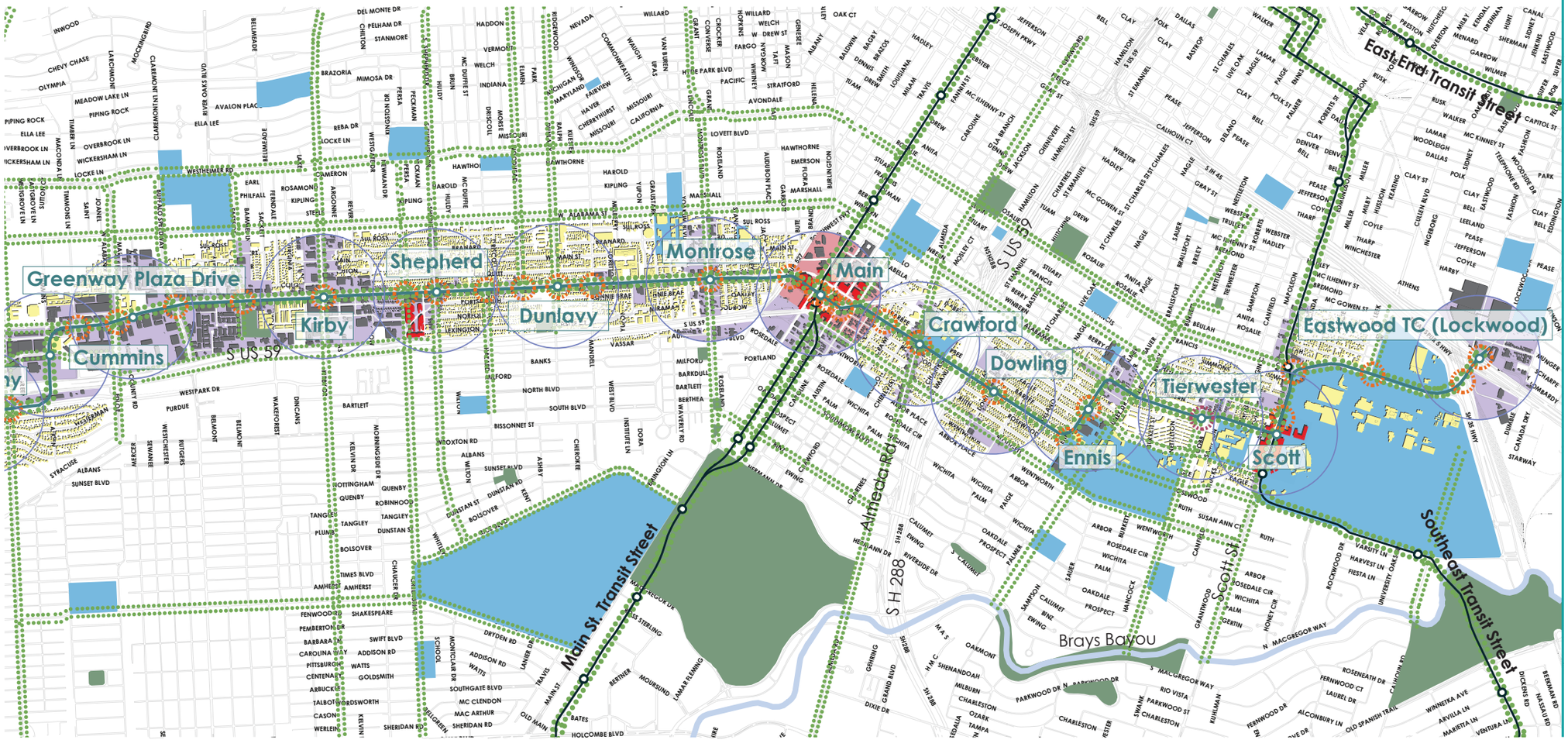
It is important to create strong connections to nearby neighborhoods along the University Corridor. These connections will reinforce pedestrian habits, especially within ¼ mile of the Transit Street. Special attention should be given to the Westpark Drive linkages, as the Transit Street is not located within the residential neighborhoods.

The potential for Transit Oriented Development is most evident along Richmond Avenue, at the Wheeler/Main Station, the Hillcroft Transit Center and U of H (see F2.3.1).


Hillcroft TC (14th St.)
Rice
Newcastle
Academy
Cummins
Greenway Plaza
Richmond Ave.
Alabama St.
Fountain View Dr.
Glenmont Dr.
Bissonnet St.
Uptown Transit Street
W IH 610
0 1/8 1/4 1/2 3/4 1 Mile
0 660 1,320 2,640 3,960 5,280 Feet
Development Opportunity Area 1 - Corridor
Development Opportunity Area 2 - Downtown

University

Pedestrian Realm/Mobility/Development Concept Plan



Stable Areas | Park | School | Existing Pedestrian Crossings | Link Streets | Demonstration Plans | Stations | Proposed Pedestrian Crossing

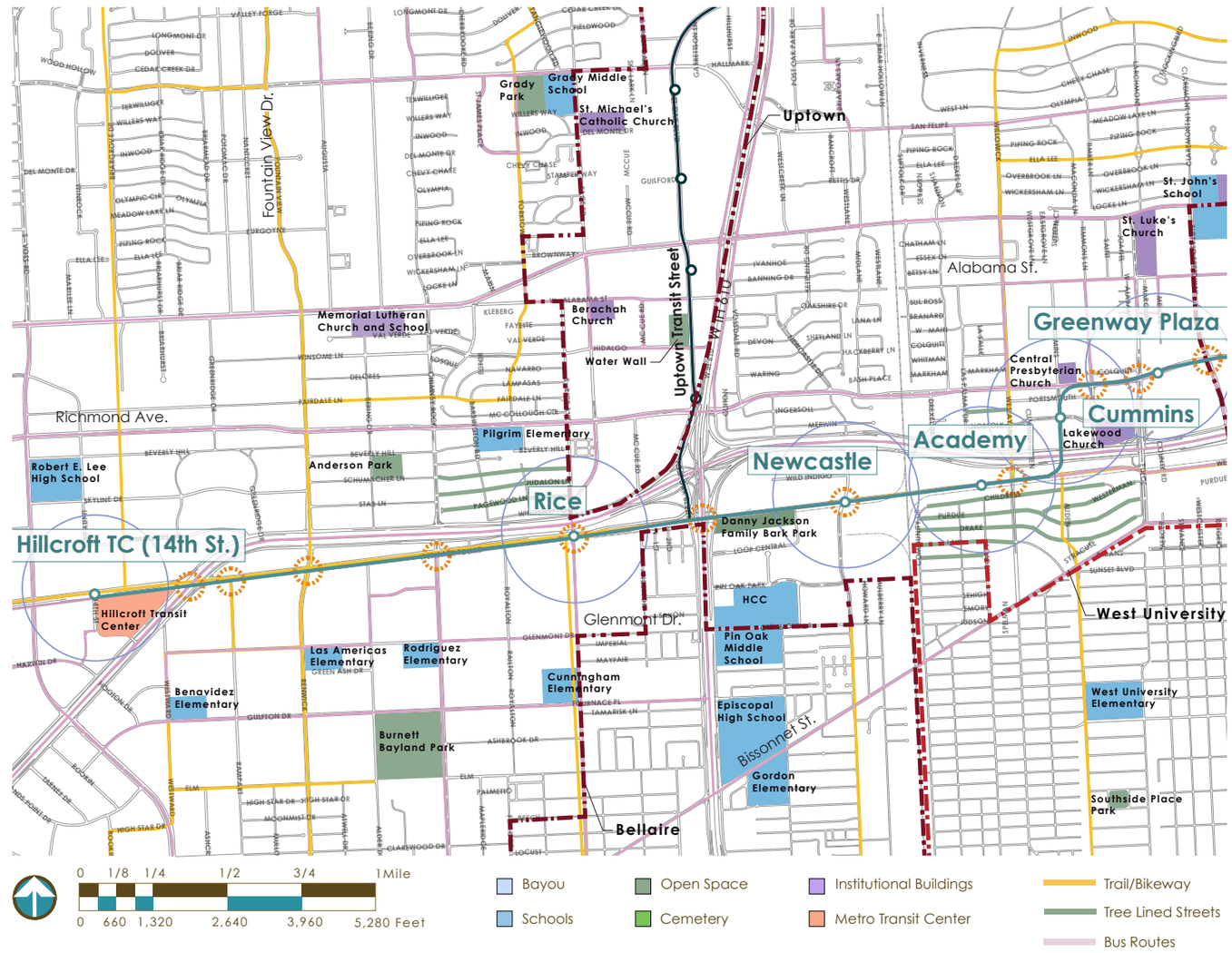
F2.2

Pedestrian Realm/ Mobility Plan

The Pedestrian Realm/Mobility Plan illustrates recommendations to improve and enhance the pedestrian realm and mobility conditions within the University Corridor. The goal of these recommendations is to provide a safe, vibrant, attractive, and highly functional pedestrian experience along the University Corridor Transit Street, adjacent to the proposed transit stations/transit centers and along key connecting streets.

Beautiful, tree lined, pedestrian focused streets are the framework of the Pedestrian Realm/Mobility Plan. Streets comprise a large percentage of public space and, as such, must be enhanced and treated as important public places. When streets function well, they are lively places where cafes, shops, public art, and gardens create vibrant outdoor spaces. This is where the eyes of the community view activities of the street and serve as the frontage for developments.

There are several streets that form the University Transit Street. These streets are all recommended for pedestrian realm enhancements: Westpark, Richmond, Wheeler, Ennis, Alabama, Scott, and Elgin. Furthermore, streets intersecting the proposed University Corridor Transit Line will provide access to and from the surrounding facilities, businesses, and communities to the stations.



Pedestrian Realm/Mobility Plan

University

Existing Pedestrian (Signalized) Crossing

Zones / Districts

Proposed Pedestrian (Unsignalized) Crossing

Proposed Open Space

Proposed Trail/Bikeway

Streetscape Enhancement (Pedestrian Connector Street)

University Transit Street

Connecting Transit Streets

5 Minute Walking Distance to Station

Building Footprint

These pedestrian connections are also recommended for enhancements.

The enhancements should include tree planting, aiming to create a continuous pedestrian canopy. Street trees will clearly identify the major streets and public places, and will provide shade to clear, wide, continuous sidewalks extending from back-of-curb to building fronts along the Transit Streets and connecting streets. In addition, pedestrian-level lighting and street furnishings are appropriate on these streets.

The intent of this pedestrian-oriented street hierarchy is to provide an integrated, multi-modal transportation network for all residents and businesses that is safe, convenient, and efficient.

Ample pedestrian crosswalks are crucial to the perception of accessibility to both sides of the University Corridor Transit Line. Great care must be taken to provide safe, well-marked, and unimpeded crossing opportunities, especially within retail zones. Bulb-outs reduce crossing distances and should be designed where on-street parking is proposed (see guidelines section F2.5). Additional crosswalks are recommended for the University Corridor at Westpark Drive at 14th Street, and Alabama Street at Tierwester Street.

Special-needs enhancements to existing crosswalks should include audible and flashing LED systems throughout this heavily travelled corridor.

Existing bike lanes should be connected to the proposed transit stations. Additional hike/bike lanes and bikeways are recommended to improve multi-modal accessibility to key corridor amenities and public facilities. These recommended trails include Alabama, Taft/Garrott, Burlington/Bagby, Brazos, Elgin, Tuam, Hadley, and Dowling Streets.

METRO bus lines should be routed to the proposed transit stations and Transit Centers with appropriate bus shelters provided.

The University Corridor does not have any of the regional or major city parks along the Corridor Street, but it distinguishes itself from other corridors with its prime location. The University Corridor provides a connection between Uptown, Main, and Southeast Corridors, all of which have direct access to the city's prime open spaces. This connector role presents a leading opportunity to enhance and develop the pedestrian realm into an integral part of the Corridors.

Urban Squares are smaller scale, publicly accessible open spaces that should be located in association with Transit Oriented Development. These small plazas are more urban in nature and do not include active/sports facilities. Urban Squares are generally accessible to public use, often privately owned, and may be gated or well lit for night security. These squares are primarily paved with planting areas, shade trees, planters, public art, fountains and seating for passive, outdoor enjoyment.

F2.3

Land Development Concept Plan

The Land Development Concept Plan divides the University Corridor into three categories based on their development potential:

Development Opportunity Area 1 - Corridor

This category is dispersed throughout the entire University Corridor. Representing those areas where redevelopment is anticipated as a result of the new transit network, the Development Opportunity Area 1 comprises a variety of existing uses and developed forms. It includes older, underdeveloped industrial and employment lands at its westernmost edge, and existing office, retail, and commercial uses along Richmond Avenue, with particular concentrations around many of the planned transit stations.

The Development Opportunity Area 1 is highly concentrated along Richmond Avenue between the planned Shepherd and Newcastle Stations, corresponding with the high concentration of employment and commercial uses. This is contrasted with a more sparse distribution of this category east of the planned Shepherd Station because the alignment moves through areas characterized by established residential areas.

Development Opportunity Area 2 - Downtown

This category comprises only a small portion of the University Corridor, concentrated around the planned Main Street Corridor and existing Wheeler Station, where the University Corridor intersects the Main Street Station. The downtown area is likely to experience large-scale redevelopment activity as a result of the planned transit facilities and proximity to the city center. It includes existing employment, office and commercial uses, which are typically subject to more frequent redevelopment. The downtown also includes vacant and underdeveloped lands within the ¼ mile station radius, where Transit Oriented Development is most likely to occur.

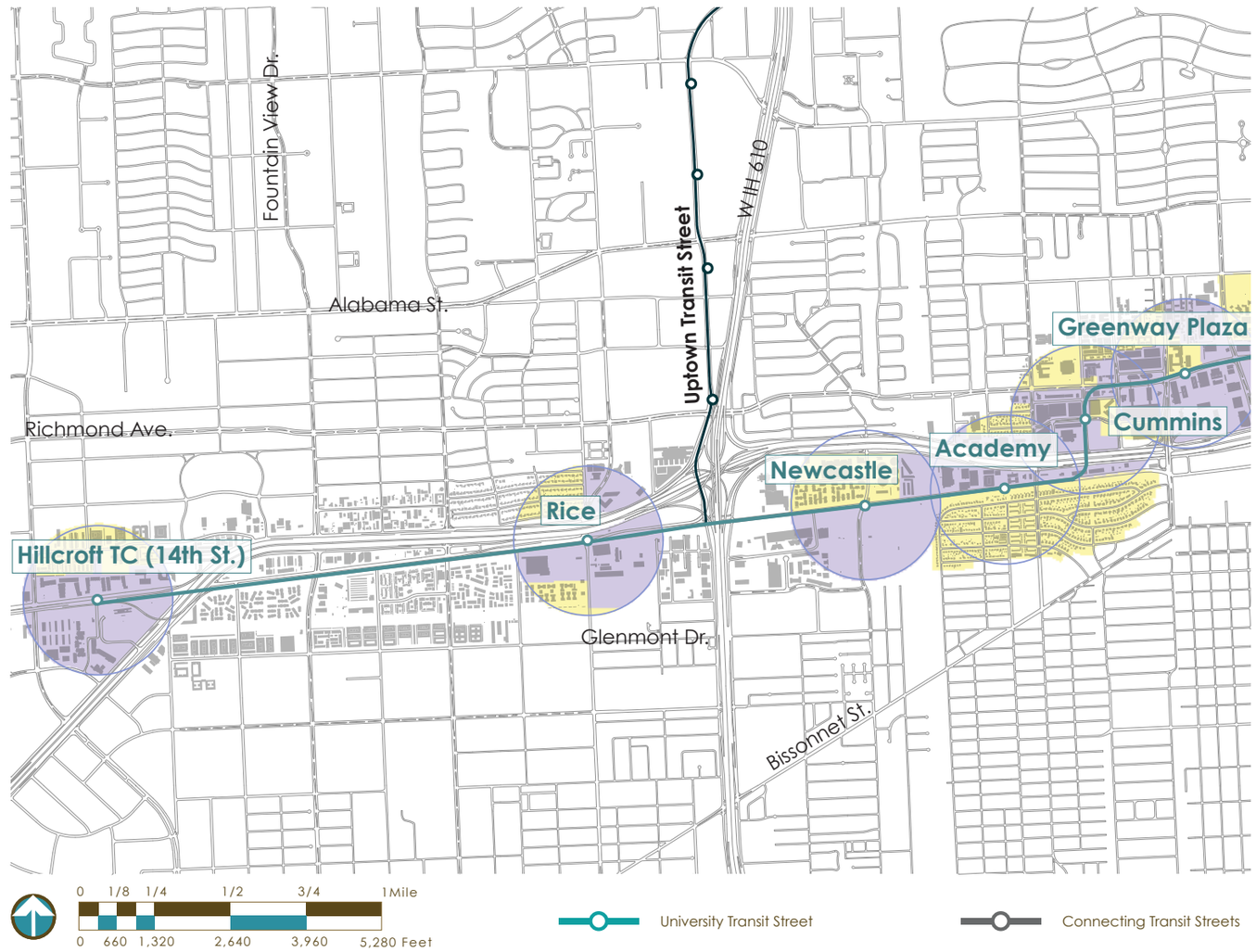
Stable Areas

Stable Areas consist predominately of residential neighborhoods and parks located throughout the University Corridor Study Area. Stable Areas are those areas that are not likely to experience large scale redevelopment activity as a result of the planned Urban Corridor. Areas designated as stable include existing residential neighborhoods, existing parks and open space, as well as significant institutional uses both within and outside of the ¼ mile station radius.

F2.3.1 Demonstration Plans

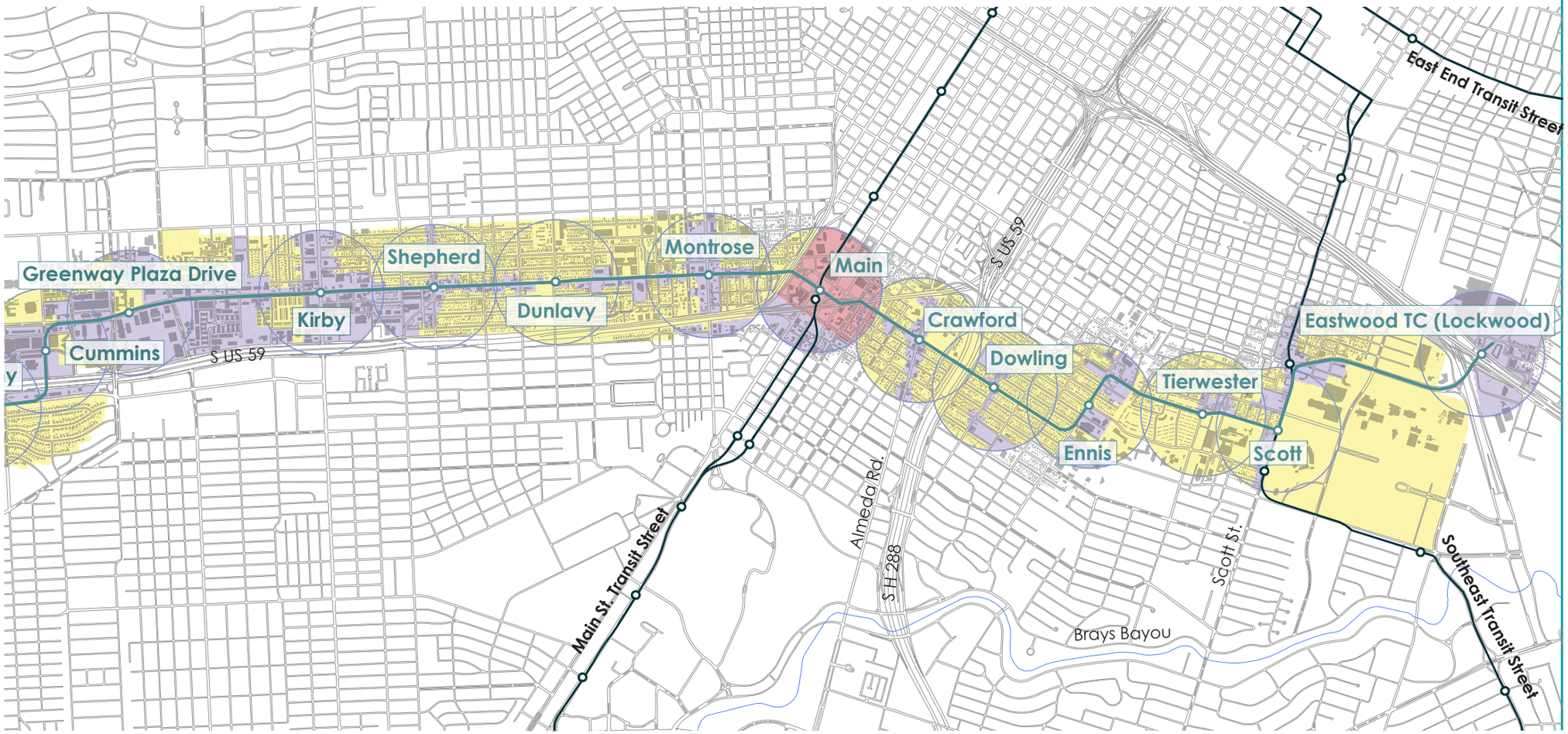
Four Demonstration Plans for prototypical sites were prepared to show, conceptually, how Transit Oriented Development could manifest itself given the varied contexts and conditions of the University Corridor.

The diagrams beginning on page 40 provide a collection of images including a site plan, photographs of development precedents and photo simulations of development concepts for sites with frontage along the planned Transit Street.


Fountain View Dr.
Alabama St.
Richmond Ave.
Uptown Transit Street
W Hl 610
Greenway Plaza
Cummins
Academy
Newcastle
Rice
Hillcroft TC (14th St.)
Glenmont Dr.
Bissonnet St.
0 1/8 1/4 1/2 3/4 1 Mile
0 660 1,320 2,640 3,960 5,280 Feet
University Transit Street
Connecting Transit Streets

Land Development Concept/Infrastructure Plan

University



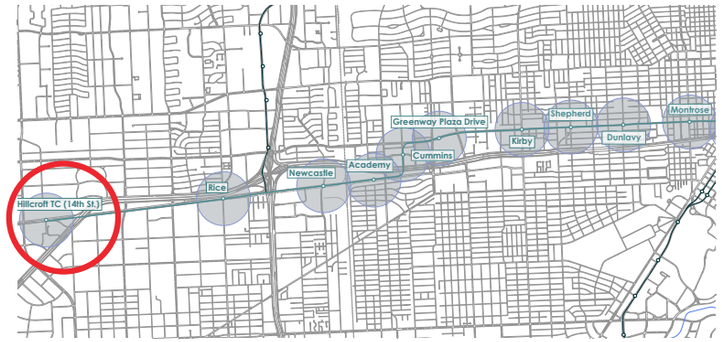
Corridor Study Area | 5 Minute Walking Distance to Station | Development Opportunity Area 1 - Corridor | Development Opportunity Area 2 - Downtown | Stable Areas

1 Large Through Lot

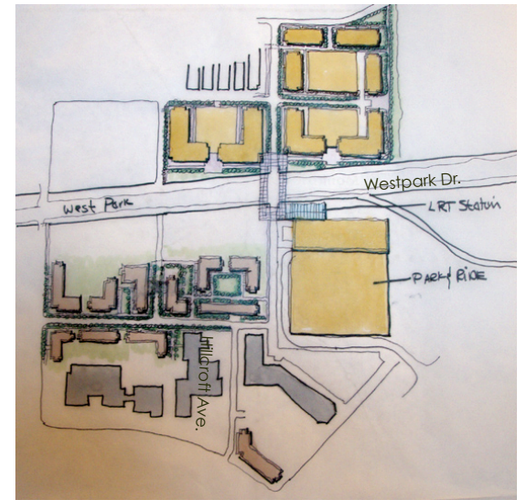
Hillcroft Transit Center

Located at the western end of the University Corridor at the existing Hillcroft Transit Center, an intermodal Transit Center adds to the dynamics of the site. This site is an example of a large through lot development.

Existing site conditions



Location of site in corridor



Workshop demonstration plan

Site Characteristics

- The site comprises approximately 1,655,580 sf of area (37.98 acres);
- the site has 600 linear feet of frontage on Westpark Drive; and
- the area surrounding the site is a mix of uses including office, residential and the Intermodal Transit Center. South of Westpark is the park and ride with residential buildings to the west and a small commercial center to the south. North of Westpark are low-rise office warehouses and residential buildings.

The Program

- The program for the site includes residential apartments on the north side of Westpark with the potential for some office space. On the south side is a major parking facility next to the intermodal station and residential buildings to the west.

The Design Solution

- Provide a range of 6-10 story buildings;
- A neighborhood of multi-family and mixed use apartments next to the transit station;

The Results

- 600 linear feet of frontage on the Transit Street;
- 2000± apartments;
- retail at 94,217 sf;
- parking structures at 1,665,185 sf; and,
- 4,755 parking spaces.

Demonstration Plan

University

3D model of the Hillcroft Transit Center demonstration plan

Precedent - 6 story mixed use, Port Credit, Canada

Precedent - 10 story mixed use, Vaughan, Canada

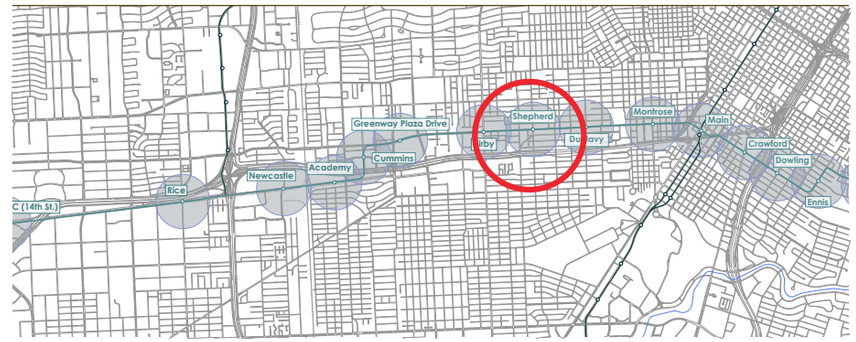
Precedent - Mixed use retail - office, Cambridge, MA

2 Large Through Lot

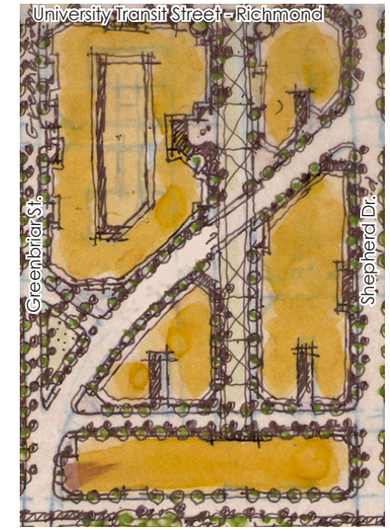
Shepherd

Located on the South side of Richmond Avenue, from Greenbriar Street to South Shepherd Drive, this site is an example of a large through lot development.

Existing site conditions



Location of site in corridor



Workshop demonstration plan

Site Characteristics

- The site comprises approximately 661,292 sf of area (15.17 acres);
- the site has 679 linear feet of frontage on Richmond Avenue;
- the site is located at the intersection of Richmond Avenue and South Shepherd Drive. It is presently the site of low-rise retail buildings with office above. Adjacent to the site are homes and the site is bounded on the south by Spur 59; and,
- this site lends itself to a mix of uses due to location and accessibility.

The Program

- The program for the site is to generate a transit supportive, mixed use development. The plan calls for mixed use residential or office above retail at grade on Richmond Avenue, residential buildings to the south and a parking structure between the residence and the highway.

The Design Solution

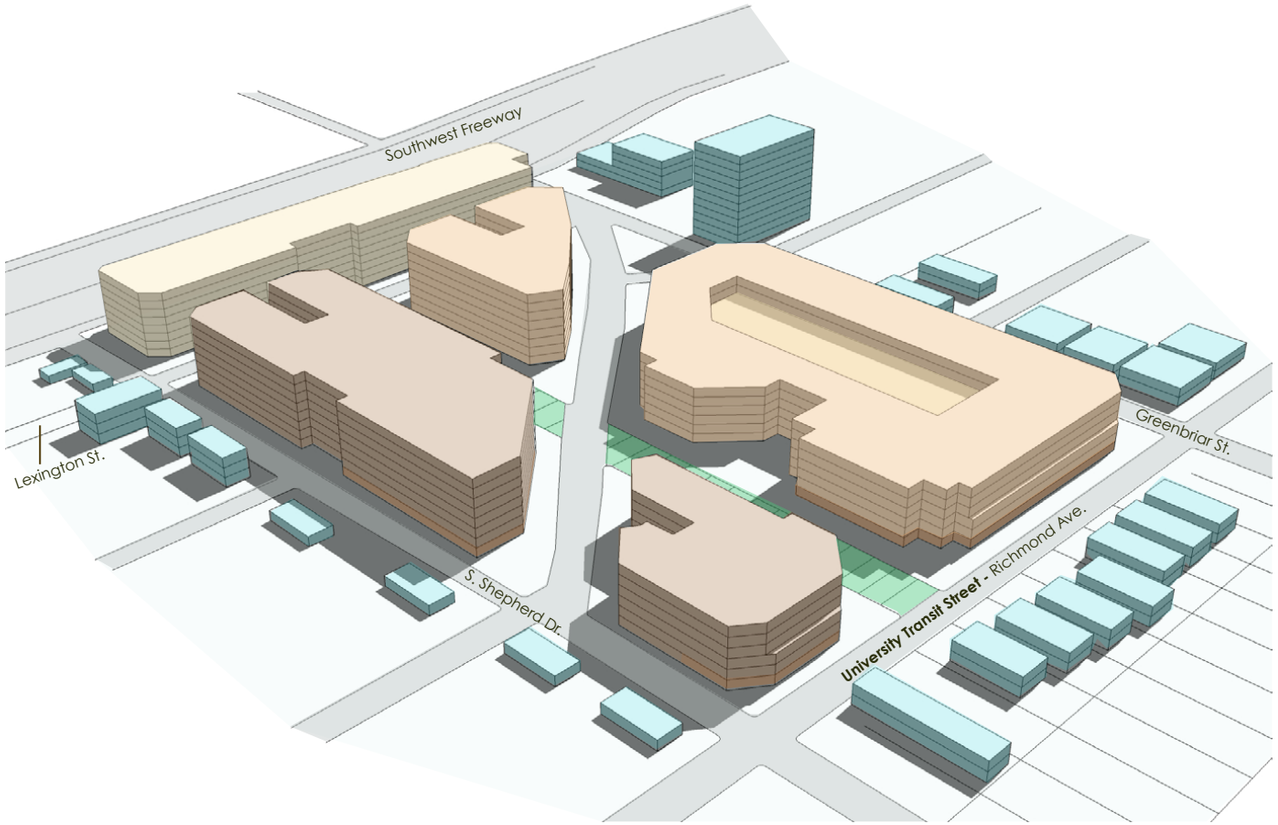
- Provide for a range of 6-8 story buildings;
- contain a mix of transit supportive uses such as multi-family residential, office, and commercial; and,
- create a pedestrian friendly environment on the pathways from Richmond Avenue to Lexington Street.

The Results

- 679 linear feet of frontage on the Transit Corridor;
- 940 ± apartments with parking provided at 1 space/unit
- 60,000 sf of ground floor retail on Richmond Avenue and along pathways from the Transit Street to Lexington Street;
- parking structures at 691,984 sf, 1976 parking spaces; and,
- office buildings along South Shepherd Drive at 711,795 sf.

Demonstration Plan

University



3D model of demonstration plan

Precedent - Mid-rise, Bethesda, MD

Precedent - Pedestrian walkway, Montreal, Canada

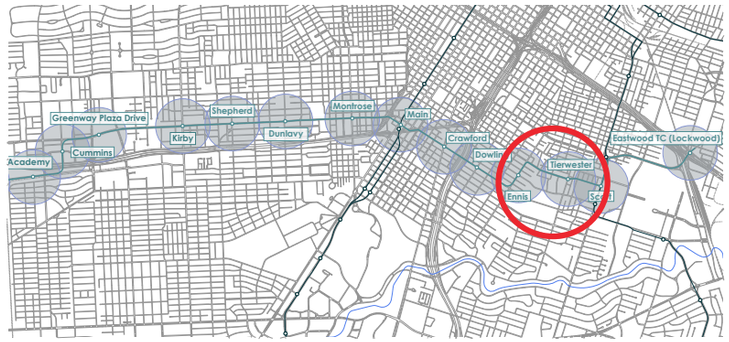
Precedent - Sugarland Town Center

3 1/2 Lot Single Frontage

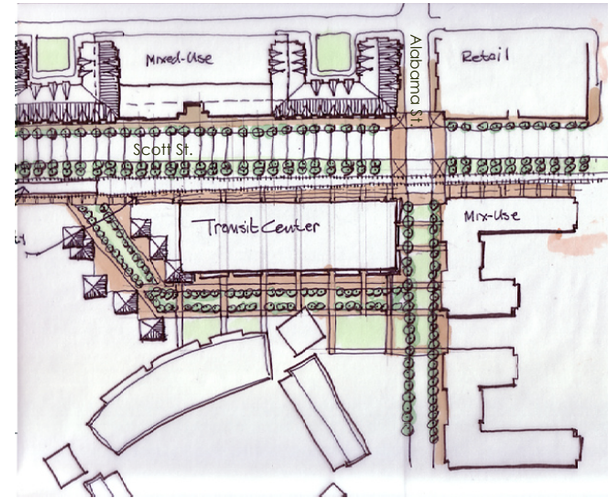
Scott Street, from Alabama Street to Cleburne Avenue

Located near the University of Houston's Robertson Stadium, the site is an example of 1/2 lot single frontage development.

Existing site conditions



Location of site in corridor



Demonstration plan created during the workshop

Site Characteristics

- The site comprises approximately 566,187 sf of area (13 acres);
- the site has 1, 765 linear feet on Scott St; and,
- the area surrounding the site is a mix of low density residential, surface parking lots and the University. Along Scott Street there is a commercial plaza and the Robertson Stadium.

The Program

- The program for the site includes mixed use residential over retail and parking over retail.

The Design Solution

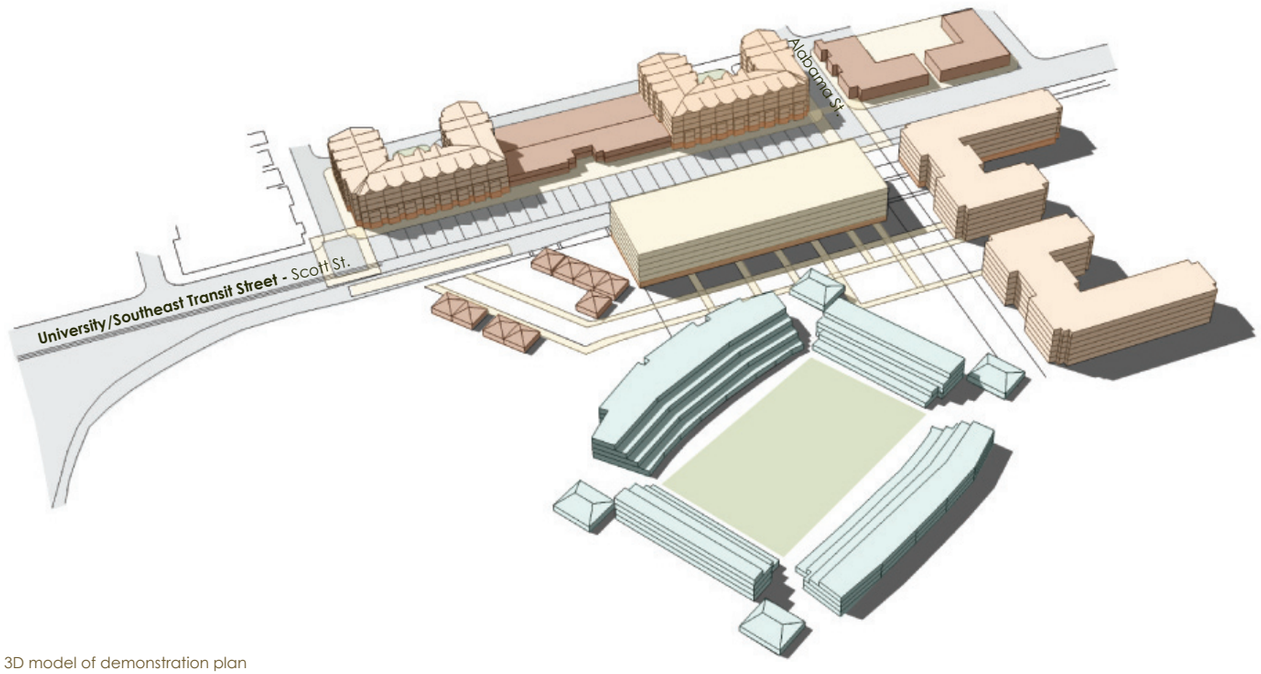
- Provide a for a range of to 2-6 story buildings;
- a mixed use Transit Oriented Development on Scott Street;
- contain a mix of transit supportive uses such as multi-family residential, and commercial; and,
- create a pedestrian friendly environment next to the existing stadium as a focus to the University and the neighborhood by developing both sides of Scott Street around the station.

The Results

- 1, 765 linear feet of frontage on the Transit Corridor;
- 175,913 sf of retail;
- 625± apartments; and,
- parking structure at 232,375 sf.

Demonstration Plan

University



3D model of demonstration plan

Photomontage illustrating the potential enhanced streetscape and built form on Scott Street adjacent to the Transit Center of University of Houston

Precedent - Urban streetscape

Precedent - Parking structure with enhanced streetscape

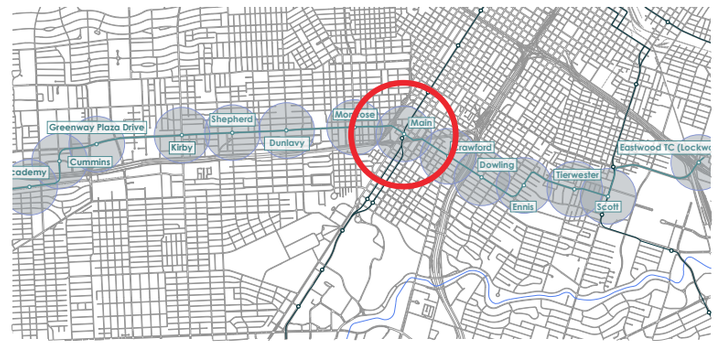
Precedent - Four-story apartments with at grade retail

4 Large Through Lot

Main St at Wheeler St

Located by S US 59 Freeway, this site is an example of large through-lot development.

Existing conditions



Location of site in corridor

Workshop demonstration plan

Site Characteristics

- The site comprises approximately 1,122,716 sf of area (25.76 acres);
- the site has 1,600 linear feet on Main Street and 1,445 linear feet on Wheeler Street;
- the area surrounding the site is primarily residential, vacant land with some retail; the site is also the location of the historic Sears and a inter-modal transit station; and,
- the existing Wheeler station is on the site and it is here where the Main Street line will cross.

The Program

- A program for the site contains a mix of transit supportive office and multi-family residential over retail and structured parking. The objective for the site is to create a major node of development at this important site.

The Design Solution

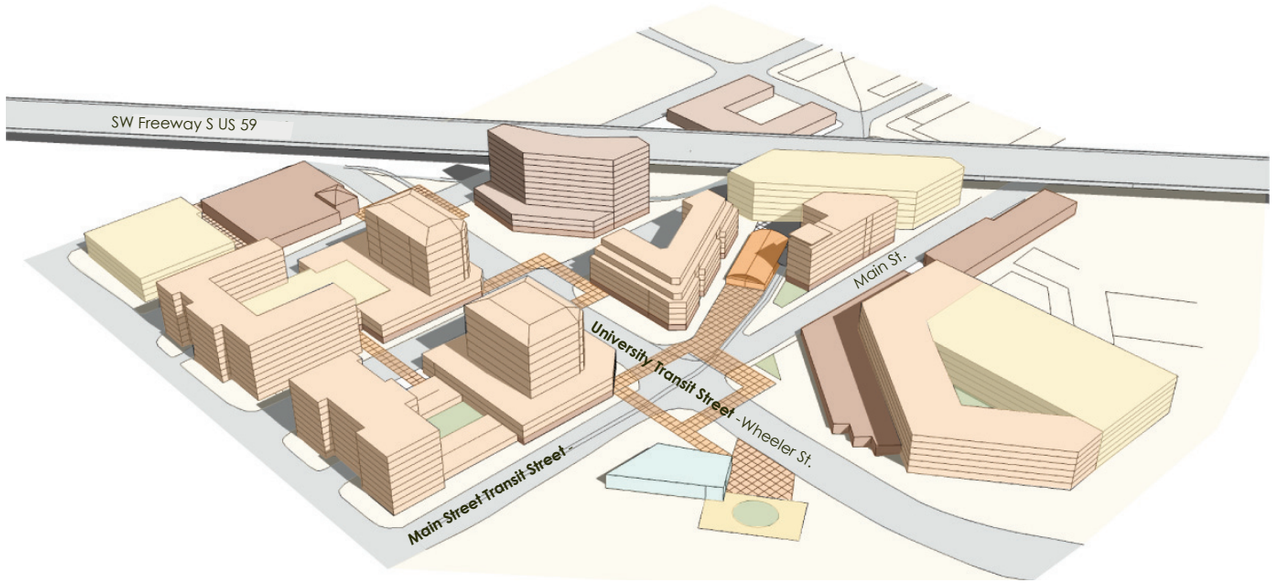
- A site plan including four mixed use, multifamily blocks and one office block serving the inter-modal transit station. The station will be an important transit focus for the city.

The Results

- 1,600 linear feet of frontage on the Transit Corridor;
- 222,609 sf office;
- 215,959 sf of retail;
- 1,200± apartments; and,
- parking structures at 212,124 sf.

Demonstration Plan

University



3D model of demonstration plan

Photomontage illustrating the potential enhanced streetscape and built form at Main Street and Wheeler

Precedent - Transit station surrounded by range of uses

Precedent - Mid-rise residential structures

Precedent - Retail facing street creates a pedestrian friendly condition

F2.3.2
Development Analysis

The following analysis is intended to test underlying development economics in the University Corridor market context. A development proforma is generic in nature and not intended to represent specific site feasibilities. The form and scale of development (a mixed use residential condominium and commercial office project), is indicative of the type of residential and commercial Transit Oriented Development one would expect could expand over time in this area, particularly with the proposed transit enhancements.

Development Scenario 1
Residential Condominium Project

Description of Development

A generic development proforma was prepared for a 415-unit, 10-story (excluding underground parking) condominium project. Ground floor commercial-retail space could be accommodated without any meaningful adjustment to the financial proforma (such as costs and average unit sizes, but the number of residential units would decline; the overall project costs would remain relatively unchanged). The ground floor represents a small portion of the overall gross floor area (GFA) for the project and therefore has a nominal impact on the proforma results. There is a proposed mix of 1-bedroom units (average 850 sf) and 2-bedroom or 2-bedroom+ units (average 1,250 sf) for sale, for an overall unit size average of 1,010 sf. The site measures 4 acres (2.4 times site coverage), with a ratio of 1.0 parking stall per unit. The total development time horizon is 36 months from land acquisition to full occupancy. The proforma details are summarized on the following page.

Comparable Properties and Market Parameters

The University Corridor covers an extensive section of the southern portion of the Inner Loop, spanning neighborhoods of varying composition. For comparative purposes, condominium details have been drawn from different neighborhoods straddling the route.

Two existing high-rise apartment projects with units for resale were identified near the proposed Hermann Park and Dryden transit stops in the Main Corridor area, south of the point where it intersects with the University Corridor. The two buildings are known as 1400 Hermann Drive and The Spire, at 2001 Holcombe Boulevard. The Hermann Drive building had a 1,728 sf unit with an asking price of $299,900 (2 bedrooms), while a 1,310 sf unit at The Spire had an asking price of $279,900 (2 bedrooms). These prices equate to roughly $174 psf and $214 psf, respectively.

Towards the western end of the University Corridor, where it meets the Uptown Corridor, there are other condominium buildings that may be examined for comparative purposes. The Mark, located in the Galleria District, has 304 units (spread over 30 floors) ranging in size from around 790 sf to 2,800 sf (mostly in the 1,300 sf to 1,500 sf range). The prices are in the range of $250 to $300 psf. The Cosmopolitan is an 84-unit, 21-story project with average unit prices above $300 psf, and large suites ranging from 1,200 sf up to 9,300 sf. Lofts on Post Oak was completed in 2004 and is a good reflection of pricing in newer, high quality luxury developments. In reviewing units for sale, it appears that pricing is in the range of $300 psf. Clearly, projects in these neighborhoods are priced quite differently than other sections of the University Corridor and its adjacent neighborhoods.

In addition to resale product, there are several new mid and high-rise projects currently being constructed throughout the Medical District and in close proximity to the Main Street Corridor. By early 2008, over 900 condominium/apartment units (which have already begun construction and are listed for sale) will have completed construction. Each of these projects are within a 1.5 mile radius of Hermann Park and no farther than 3/4 of a mile from Main Street. Notably, Mosaic at Hermann Park is a high-rise condominium building with two towers totalling 788 units. Mosaic is located on the eastern side of Hermann Park, at 5925 Almeda Road. Other projects of note include 5001 Fannin, The Collective at Baldwin Park, and Serento, with Serento's units (high-end) being listed at prices of around $265 psf. Overall, new condominium pricing appears to range from $200 to $300 psf across the market, depending upon location and building quality/finish.

As outlined in the market overview, based upon MLS data from the Houston Association of Realtors, the average resale townhouse/condominium price along the western portion of the University Corridor is in the range of $246,000 (MLS Districts 16 and 17), while the eastern segment had an average value of close to $221,000 (MLS District 4). Notably,

Economic Rent/Price Calculation- Residential Condominium

University

the average resale single family house price exceeds $650,000 in the western section, which is vastly different than the eastern portion, which is closer to $127,000. This pricing structure indicates that condominium product represents a less expensive housing option for households in the western portion of the Corridor, while residents of the eastern portion would be faced with pricing well above the market average for existing detached dwellings.

Proforma Results

The economic price required to justify new construction of condominium apartments in this area is within the range of current pricing at comparable projects, and at a premium to resale product of similar character. The neighborhood housing market dynamics vary greatly along the extent of the University Corridor; this generic proforma is intended for illustrative purposes and does not represent a specific development site. The proforma presented below suggests a required sale price of around $271,000, or $268 psf. There is, of course, the possibility of upgrading or downgrading the quality of building finish to appeal to a certain target market, depending upon the height of demand.

Some observations regarding the proforma for this type of project include the following:

- Hard construction costs (including underground parking) represent some 62% of total project costs. The cost of underground parking itself accounts for roughly 8% of the total end unit price, but facilitates additional neighborhood density, which is a key element in supporting an enhanced transit provision.

Assumptions

Timing Assumptions		
Land Acquisition	01-Jan-08	
Planning Period	6	months
Construction Commencement	03-Jul-08	
Construction Period	24	months
Substantial Completion	01-Jul-10	
Cost of Vacancy Period	6	months
Full Lease-Up	31-Dec-10	
Total Development Period	**36**	**months**
Interest Rate		
Interim Financing	7.00%	
Building Areas		
Number of Units	415	
Number of Buildings	1	
Average Unit Size	1,010	sq.ft.
Number of Storeys	10	
Floor Plate	41,915	sq.ft.
Gross Building Area	419,150	sq.ft.
Site Coverage	2.41	times
Land Area	4.00	acres

Residential Units	G.B.A.	Avg. Size	G.F.A.	G.L.A.
1 Bedroom	60%	850	211,650	196,835
2 Bedroom +	40%	1,250	207,500	207,500
TOTAL	100%	1,010	419,150	404,335 sq.ft.

Parking Ratio	
1.00 stalls per residential unit	415 stalls

Project Costs

		$ 000's	PSF
Land			
Purchase Price	Note 1	$21,780	$51.96
Additional Land Costs	Note 2	$1,089	$2.60
Land Carrying Costs	Note 3	$4,002	$9.55
TOTAL		**$26,871**	**$64.11**
Construction & Fringe			
Hard Construction Costs	Note 4	$54,720	$130.55
Parking	Note 5	$8,300	$19.80
Architect. & Engineer.	Note 6	$3,466	$8.27
Site Improvements	Note 7	$523	$1.25
Const. Contingency	Note 8	$3,151	$7.52
Municipal Fees	Note 9	$437	$1.04
Development Interest	Note 10	$988	$2.36
TOTAL		**$71,585**	**$170.79**
Sales & Marketing			
Sales Commissions	Note 11	$2,766	$6.60
Marketing & Advertising	Note 11	$1,038	$2.48
TOTAL		**$3,804**	**$9.08**
TOTAL PROJECT COSTS		**$102,260**	**$243.97**

Required Price/Rent Calculations

Required Return on Investment	**10%**	
Required Average Sale Price	**$268.37**	PSF

- Total land costs represent roughly 26% of the end unit price – this assumes land values of roughly $5.5 million per acre plus some carrying costs. Notably, this development has smaller unit sizes (particularly in comparison to some resale units in older, established buildings) in order to test the viability/ benefit of such a scenario.
- A developer needs to profit from any development at a rate consistent with the risk. Taking into account total project costs of approximately $102 million and assuming a 10% profit margin on the total project (higher when leveraged equity is considered), the required average sale price per unit is $268 per square foot.

A key consideration regarding the market feasibility for this type of development project is the potential demand generated by proximity to the enhanced Transit Corridor. There are clearly a number of cost-competitive housing options in this area, including significant condominium supply at varying price points, both new and resale. The ability to reduce car ownership may also assist with affordability, if efficient public transit can be utilized.

Development Scenario 2 Mid-Rise Office Project

Description of Development

A generic development proforma was prepared for a 6-story, 165,000 sf office building with ground floor commercial/retail space. The land area of the site measures 1.25 acres, and there is a parking ratio of 1.25 stalls per 1,000 sf. The envisioned development time horizon is 39 months from land acquisition to full occupancy, including 24 months of construction. The proforma details are summarized on the following page.

Comparable Properties and Market Parameters

The University Corridor stretches east-west across the city, with the western extent being in proximity to the West Loop/ Galleria office concentration (site of the Uptown transit corridor), and the central portion of the route traversing the Richmond/Buffalo Speedway office concentration (the 10-building Greenway Plaza complex accounts for nearly half of the office inventory of this node). The CBD market is located to the north of the central section of the University Corridor, but is removed from the actual transit route.

In the Richmond/Buffalo Speedway office node, Class A average asking rental rates are in the range of $28.60 psf gross, and the overall vacancy rate is approximately 17%. For the CBD Class A office market, the average asking gross rental rate is approximately $36.70 psf ($24.70 net psf plus $10.00 psf additional rent). Of course, new buildings would command a market rate at the top of the rental rate spectrum given their age, quality of building finishes, and other factors.

Achievable rents in the CBD are anticipated to be well above those achievable at an office development along the University Corridor, given the established nature of the area, local amenities, proximity to other businesses and clients, etc. In contrast, rents within the Richmond/Buffalo Speedway node are comparatively less expensive. For comparative purposes, a new project called Discovery Tower broke ground the last week of February, 2007, and has a present asking net rental rate of $33.00 psf. This building is some 871,000 sf and 30 stories in height, located in the CBD (near the intersection of the Main Street and Southeast Corridors).

For the CBD Class A office market, the average asking gross rental rate is approximately $36.70 psf ($24.70 net psf plus $10.00 psf additional rent). Of course, new buildings would command a market rate at the top of the rental rate spectrum given their age, quality of building finishes, and other factors.

Notably, rising construction costs have impacted the viability of new office construction across the market, despite improving leasing market conditions that have supported higher rental rates.

Proforma Results

The development proforma presented below suggests a required net rental rate in the range of $25.00 psf to economically support new construction. This represents a rent that is between the levels achievable in the CBD and those in suburban office markets, so the viability of such a project is marginal. Current rental rates for the Richmond/ Buffalo Speedway office node, which lies in the central portion of the transit corridor, are approximately $18.00 to $20.00 net 9or $28.60 gross). Attracting a lead tenant/ tenants to initiate the project at a favorable rental rate would be vital. However, there is significant new office supply in the development pipeline across the Houston

market, that will be added to established office nodes in coming years, and a project along the University Corridor would face considerable competitive pressure that would impact potential achievable target rents.

Some observations regarding the development proforma include the following:

- Hard construction costs (including underground parking) represent two-thirds of total project costs. These costs are projected, and would vary depending on the ultimate class/caliber of the building design and architectural features. Underground parking, a key consideration in developing a dense built form, comes at nearly a 50% premium compared to the equivalent provision of structured parking.
- As specified in the proforma, land costs represent roughly 10% of total project cost. Land costs will vary depending on location (prime sites) within the University Corridor, but have a relatively limited impact on project costs compared to hard construction costs.
- Understandably, a developer needs to profit from any development at a rate consistent with the risk. The proforma takes into account total project costs of approximately $41 million ($248 psf) and assumes a 10% profit margin on the total project (higher when leveraged equity is considered).

Economic Rent/Price Calculation- Mid-Rise Office

University

Assumptions

Timing Assumptions

Land Acquisition	01-Jan-08	
Planning Period	6	months
Construction Commence.	03-Jul-08	
Construction Period	24	months
Substantial Completion	01-Jul-10	
Cost of Vacancy Period	9	months
Full Lease-Up	01-Apr-11	
Total Development Period	**39**	**months**

Interest Rate Interim Financing 7.00%

Building Areas

Number of Buildings	1	
Number of Storeys	6	
Floor Plate	27,500	sq.ft.
Gross Building Area	165,000	sq.ft.
Site Coverage	3.03	times
Land Area	1.25	acres

	G.B.A.	G.F.A.	G.L.A.
Office	95%	156,750	145,778
Retail	5%	8,250	7,673
Other	0%	0	0
TOTAL	100%	165,000 sq. ft.	153,450 sq.ft.

Parking Ratio

1.25 stalls per 1,000 sq. ft. of G.F.A. 206 stalls

Project Costs

		$ 000's	PSF
Land			
Purchase Price	Note 1	$3,300	$20.00
Additional Land Costs	Note 2	$165	$1.00
Land Carrying Costs	Note 3	$606	$3.68
TOTAL		**$4,071**	**$24.68**
Construction & Fringe			
Hard Construction Costs	Note 4	$23,150	$140.30
Parking	Note 5	$4,125	$25.00
Architect. & Engineer.	Note 6	$1,500	$9.09
Site Improvements	Note 7	$163	$0.99
Const. Contingency	Note 8	$1,364	$8.27
Municipal Fees	Note 9	$61	$0.37
Development Interest	Note 10	$1,700	$10.31
TOTAL		**$32,064**	**$194.32**
Cost of Vacancy	Note 11	**$340**	**$2.06**
Deferred			
Tenant Allowances	Note 12	$3,300	$20.00
Leasing Costs	Note 13	$660	$4.00
Financing Costs		$504	$3.06
TOTAL		**$4,464**	**$27.06**
TOTAL PROJECT COSTS		**$40,940**	**$248.12**

Required Price/Rent Calculations

Required Return on Investment	**10%**	
Required Face Rent	**$24.81**	PSF
Required Net Effective Rent (1)	**$22.56**	PSF

Conclusions Regarding Development Analysis

The scenario 1 analysis demonstrates the required sales price for units within a new, medium density condominium development. When assessing this development proforma, it is important to note it reflects new building costs which generally exceed market affordability for many area residents, although it would certainly be expected that such a development would draw upon a broad population base of Houston residents who would consider relocating to a more central location.

The average resale condominium price in the University Corridor area was approximately $220,000 to $250,000, based upon year-to-date sales activity data provided by the Houston Association of Realtors (the University Corridor spans multiple MLS Districts, which explains the range of pricing provided), while the proforma above generates a required sale price of around $271,000 (based on an average unit size of 1,010 sf). This figure is roughly 10% to 20% above the resale market pricing, which is in line with expectations for a new project.

With a median household income of roughly $43,250 across the whole University Corridor, the affordable house price, at the median, is roughly $168,550. An annual household income of approximately $69,500 is required to afford the condominium unit described in the proforma, and nearly 35% of area households meet this threshold. The affordability model incorporates a 6% interest rate, 30 year amortization, 20% down payment, and a calculation of monthly principal, interest and taxes, with the assumption that 32% of gross monthly income can be dedicated to housing costs.

In order to facilitate more rapid, higher density residential and commercial development along this Corridor, certain forms of 'assistance' might have to be considered. This might include financial subsidies for development in the form of reduced building permit and development fees for certain development density thresholds.

Lastly, although it is not explicitly examined in the proforma here, the availability of quality public schooling is clearly an important criterion within the city for attracting families to higher density forms of housing in established central areas.

F2.4

Infrastructure Overview

The University Corridor presents the widest range of development conditions of all of the Transit Streets. The existing state of the Corridor ranges from the most urban condition of Houston for much of Richmond Avenue to the widest roadway section along Westpark, and the most immediate residential area on Wheeler.

Based on the research of the existing University Corridor infrastructure, it appears that the watermains are near the end of their lifespans in much of the Corridor, and may be undersized to provide for more intense development.

Sanitary sewer lines for a majority of the Corridor are past their predicted lifespans. It is recommended that the condition assessment of sewer lines be done for sewers that are more than 30 years old, by closed circuit television inspection.

It is important to realize that development will occur over a period of time and the infrastructure design for renewal and replacement should take place over that same period.

The following recommendations should be carefully considered:

- All overhead wires should be buried as the corridors are being reconstructed to accommodate transit.
- Pedestrian level lighting should be provided on the sidewalk side of the poles, instead of the street side, for all of the corridor sections within ¼ mile of a station.

F2.5

Design Guidelines for TOD

Introduction

The successful realization of the Urban Corridor Plan requires that the guidelines for new development outlined in this chapter form the basis of the City's new planning regime for Transit Oriented Development. The guidelines clarify the City's expectations and provide the framework for the coordinated and consistent review and evaluation of applications for Transit Oriented Development within the University Corridor.

The guidelines correspond with the Development Opportunity Areas as delineated by the Land Development Concept Plan and provide a series of mandatory requirements and optional guidelines for the design of pedestrian realm; buildings; parking, access and service facilities; and, engineering/infrastructure standards.

The following describes the overarching principles and objectives that form the basis of the guidelines in each of the Development Opportunity Areas:

Streetscapes/Pedestrian Realm

The guidelines for streetscapes are complex and include provisions for the pedestrian realm, which may include public and private lands, and is comprised of sidewalks, publicly accessible and visible open spaces, as well as the paved component of the street (the area between the curbs), including the portion that accommodates the transit facility, and other streets that are important to feed the transit system. In addition, public parks in proximity to the transit facilities require additional attention as key components of the pedestrian realm.

Buildings

The guidelines for buildings include all forms of development on lands considered to comprise the "private realm". The guidelines include provisions for the transition between development within the identified Development Opportunity Areas and the Stable Areas.

Parking, Access and Service Facilities

Parking, access and service facilities have been identified as a vital issue in establishing an urban environment and visually pleasing streetscapes in conjunction with Transit Oriented Development. In addition, parking is a crucial element in influencing the cost of Transit Oriented Development. Urban development typically requires less parking than suburban forms of development, and also provides opportunities for shared parking. Higher density built form demands parking in structure.

Engineering

One of the primary objectives of the Urban Corridor Plan is to develop a comprehensive approach to development. An important component of that process is to standardize the implementation of engineering design standards.

Development Opportunity Area 1- Corridor

Mandatory

F2.5.1 Development Opportunity Area 1 Corridor

Guidelines within the Development Opportunity Area 1- Corridor include a combination of mandatory development requirements, optional design guides and optional performance standards that, if achieved, make a particular development eligible for a series of additional performance benefits.

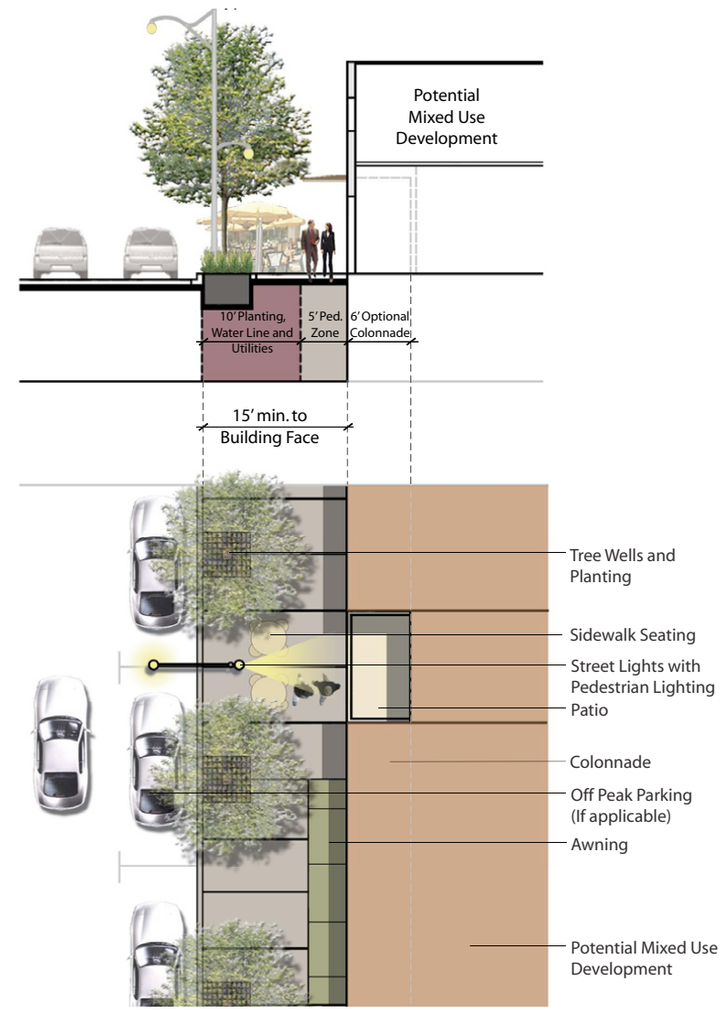
Mandatory

Mandatory Development Requirements within the defined Development Opportunity Area 1.

Statement of Application: Applies on sites that abut the Transit Street and are within 1/4 mile of a transit station

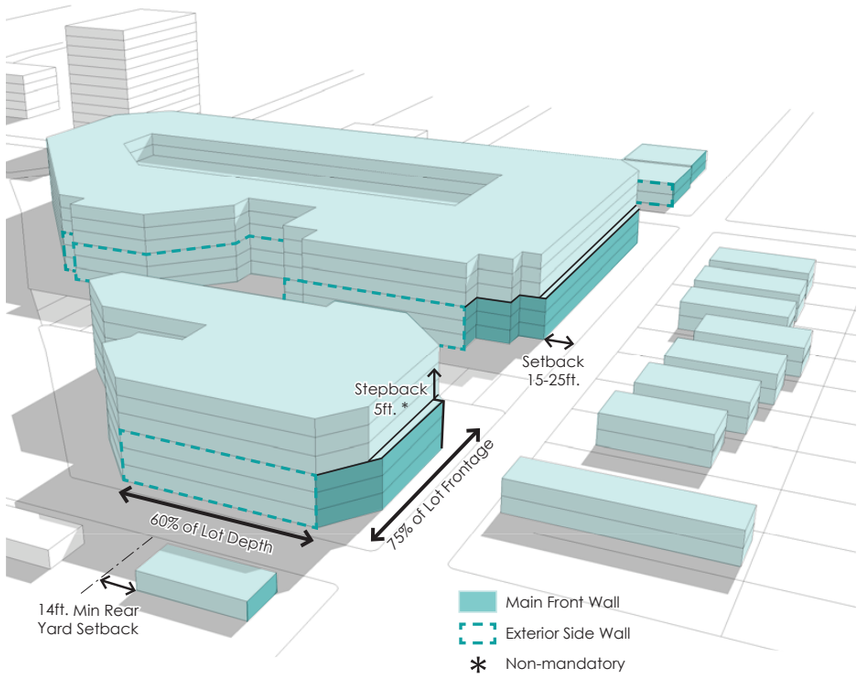
Pedestrian Realm

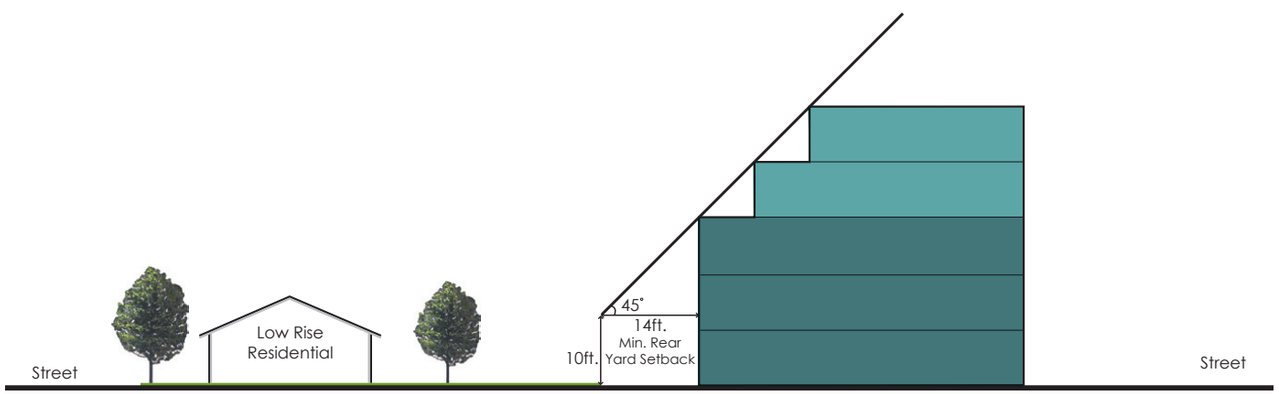
1. All buildings, with the exception of street facing townhouse units, shall be developed with a substantial portion of their front and exterior side façades between 15 and 25' of the back-of-curb. It is understood that where a parcel has three sides abutting a public street, the build-within concept may not be achieved on the third side.
2. Street facing townhouses with no street facing garage shall ensure that the main front wall of the unit be built within 15 and 30' of the back-of-curb.
3. Where front garages are proposed, the main front wall of the building shall be built within 20 and 40' of the back of the curb.
4. The exterior side build-within zone for street townhouses shall be between 15 and 30' of the back edge of the curb.
5. In locations where the public street right-of-way is equal to, or greater than the required 15', the build-within zone shall be established from the edge of the street right-of-way and shall be between 0 and 10'.
6. On corner parcels, the exterior side yard shall also include a build-within zone located between 15 and 25' from the back edge of the curb, and the main exterior side wall shall occupy a minimum of 60% of the depth of the parcel, within the build-within zone. On shallow lots, the City may consider, on a site-by-site basis, an allowance for a rear driveway.
7. In all Transit Street Configurations, 15' from the back-of-curb is required for the pedestrian realm.
8. Where the rear yard or interior side yard of a Transit Oriented Development site abuts a single detached house, an angular plane shall be implemented to control the height of the building. The angular plane shall be established as follows:
   - a TOD site will be evaluated according to an analysis of adjacency and proximity to a threshold level of existing single-family detached homes, Transit Street frontage, deed restrictions, and other non-discretionary factors. If the site falls within certain criteria, an angular plane determined from a line corresponding to a certain number of feet above grade from the parcel line(s) abutting the single family properties and extending at a certain angle into the subject property from this above-grade line shall establish the maximum height of buildings on the subject site.



Typical Pedestrian Realm Section

Mandatory DOA 1 - Corridor





Angular Plane

9. All residential buildings with direct access to dwelling units from the street, shall be elevated a minimum of 2' 6" to provide privacy and a sense of entry to the unit. The maximum elevation from grade to the entrance landing shall be 5'.

10. On all lands fronting onto a public street, a Major Thoroughfare and/or a Major Collector, the minimum built frontage requirement shall be 75% of the parcel frontage and shall be occupied by the main front wall of a building within the build-within zone.

11. Notwithstanding the requirements for a minimum built frontage, where a publicly accessible and usable open space is provided abutting a front and/or exterior side parcel line, the frontage occupied by the publicly accessible and usable open space shall be counted toward the minimum built frontage requirement.

12. A minimum of 75% of the main front wall shall be at grade and, on a corner parcel, an exterior side wall at grade of any non-residential building shall consist of windows and entranceways that facilitate visibility into the building.

13. The City shall not accept cash-in-lieu of required street trees, unless a substantiated technical reason is provided that precludes street tree planting. Where cash-in-lieu of street trees is accepted, the monies received shall be utilized in coordination with the Parks and Recreation Master Plan to enhance tree cover in a local public park, or along the Transit Street within 1/4 of a mile of the development site from which the cash-in-lieu of street trees was accepted.

DOA 1 - Performance Standards

Non-Mandatory

Non-Mandatory

Non-Mandatory Development Requirements within the defined Development Opportunity Area 1.

Performance Standards

Statement of Application: Optional Performance Standards apply on sites within ¼ mile of a transit station. Developments that achieve all of Performance Standards will be eligible to utilize Performance Benefits as defined.

Development Blocks

14. For all large scale Transit Oriented Development projects (defined as projects on development blocks or parcels that are greater than 5 acres in size), the maximum development block or parcel size shall be approximately 5 acres in area. In all cases, there shall be no minimum development block or parcel area.

15. No development block or parcel frontage on a street shall exceed 600'. In all cases, the minimum development block or parcel frontage shall be 25'.

16. Large scale Transit Oriented Development projects shall provide public streets, or publicly accessible private streets, to subdivide any development block or parcel greater than 5 acres in size into smaller development blocks or parcels in accordance with this policy.

Buildings

17. The minimum density for any Transit Oriented Development project shall be a Floor Area Ratio of 1.00.

18. There shall be no specified maximum density.

19. The minimum height for any Transit Oriented Development building shall be two stories, or 18', whichever is greater. Buildings on corner sites shall be a minimum of three stories, or 27', whichever is greater.

20. There shall be no specific height limit.

21. Where any Transit Oriented Development building abuts a street, the building height shall be established as follows:

- the main front wall and/or exterior side wall shall be permitted up to three stories (or 27', whichever is greater) within the corresponding build-within zone; and,
- for any main front wall and/or exterior side wall above three stories (or 27', whichever is greater), the building shall be stepped back from the main front wall and/or the exterior side wall of the base building by a minimum of 5'.

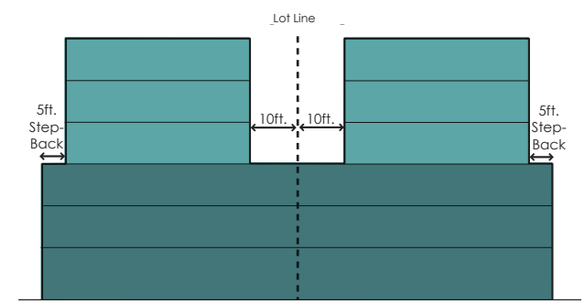
22. Buildings of up to three stories may be built with zero setbacks to interior side parcel lines. Exterior side yards shall conform to the described build-within zones.

23. Buildings above three stories may include a zero interior side yard setback for the base building of three stories, but building side walls must be set back a minimum of 10' from the interior side yards for that component of the building above three stories.

24. The City will encourage a transitional rear alley or easement process, coupled with access management from pedestrian and Transit streets, on a block-by-block basis, where possible and appropriate.

Street Wall Building, Toronto, Canada

Streetscape/Pedestrian Realm, Bethesda, ML



Space between Buildings

Non-Mandatory

DOA 1 - Performance Benefits

Restaurant seating - Temporary encroachment, Bethesda, ML

Colonnade, South Lake, TX

Public parking garage in a private condominium, Toronto, Canada

Encroachments

25. Permanent encroachments shall be considered for permitting on a site-by-site basis, subject to design performance standards (to be developed) that consider such features as shade / weather protection, pedestrian clear zone width, space for street tree canopy, right-of-way proportions, utility clearances, etc.

26. The amount of any permitted encroachment shall be established by the City on a site-by-site basis, and in consideration of the following criteria: the encroachment enhances pedestrian comfort by providing shade and/or protection from the rain; and, the encroachment does not impede pedestrian movement, and maintains an unobstructed sidewalk area of a minimum width of 5'.

Parking

27. General public parking (surface lots and / or structured parking facilities) to serve TOD areas will be provided to augment the supply of parking.

28. On-street parking shall be promoted within all of the Urban Corridors.

29. The City shall pursue opportunities for the establishment of on-street parking in partnership with adjacent landowners where the spaces are provided on a combination of public land and private property, with public access to the parking spaces secured through agreements with the City.

30. Surface parking, loading areas, drive-through lanes and servicing facilities shall not be permitted in front of Transit Oriented Development buildings. Surface parking, drive-through lanes and/or servicing facilities may be permitted in an interior side yards, and are permitted within the rear yard.

31. Surface parking, loading areas, drive-through lanes and servicing facilities, where permitted, shall be appropriately screened from view from the street. Surface parking lots shall respect the build-within zones. Where surface parking must be provided, the visual impact of large surface lots shall be mitigated by a combination of setbacks, and significant landscaping including: pavement treatments, low walls or decorative fencing, landscape, trees and lighting throughout parking lots and along the edges.

32. Parking is encouraged to be provided in structures, either above, or where possible, below grade. Where a parking structure is above grade, it shall include a façade with active uses at grade and appropriate architectural articulation. Entrances to below grade or structured parking and service areas should occur within the building.

33. Access to parking and servicing areas should occur off side streets or service lanes and to the side or rear of buildings, where possible.

34. It is an objective of the City to limit access driveways to individual sites adjacent to the Transit Street. The City shall encourage shared access driveways and, preferably, shared rear lane access for all Transit Oriented Development. Where new development is proposed, the City shall require a minimum of 100' between access driveways onto the Transit Streets.

Performance Benefits

Statement of Application: Performance Benefits are available to developments within ¼ mile of a transit station that achieve all of the Performance Standards and generate no undue adverse impacts on the stability of adjacent Stable Areas.

Parking

35. For all retail and service commercial uses, including restaurants - a minimum of 2.0 and a maximum of 4.0 spaces/1,000 square' of Gross Leaseable Floor Area; reductions in current parking standards to this minimum shall be graduated over time.

DOA 1 - Design Guidelines

Non-Mandatory

36. For hotels/inns - a minimum of 1.0 and a maximum of 1.25 spaces per room.

37. For all office uses - a minimum of 2.0 and a maximum of 3.0 spaces/1,000 square' of Gross Leaseable Floor Area.

38. For all condominium-based residential uses, a minimum of 1.0 and a maximum of 1.75 spaces per unit, inclusive of visitor parking.

39. For all fee simple residential uses – a minimum/ maximum of 2.0 spaces per unit.

40. Where a public parking facility is developed, Transit Oriented Developments within 300' the City may reduce the minimum parking requirement, in recognition of the enhanced public parking supply. The reduction of the minimum parking requirement shall be determined by the City on a case-by-case basis.

41. Parking requirements for any individual development do not necessarily need to be provided on the same parcel, or on a parcel contiguous to the development. Required parking for any Transit Oriented Development may be provided on any parcel within 300' of the development that is being served by the parking facility.

42. Where a Transit Oriented Development is unable, or does not wish to provide all of the required parking spaces, the City may accept cash-in-lieu of the parking spaces. The minimum parking requirement shall be used to calculate any parking space deficiency. The cost of each parking space shall be established by the City, and may be waived for any specific development, at the discretion of the City. The funds raised through this provision shall be utilized by the City's Parking Authority solely for the purchase of property for public parking and/or the building of public parking structures in proximity to the Transit Street where the fees were collected.

Design Guidelines

Statement of Application: Non-mandatory development guidelines.

Pedestrian Realm

43. Buildings shall be connected to the street - by proximity, by the location of windows and entranceways, and the level of architectural detail.

44. Buildings shall be sited and organized to create a street space scaled to the pedestrian, and organized to present an appropriate façade to all adjacent streets to provide interest and comfort at ground level for pedestrians.

45. Main building entrances shall, wherever possible, be oriented toward adjacent streets to provide convenient access to pedestrians and public transit; buildings, and their main public entrances, shall be located close to the front and exterior side property lines, on-street parking, and the public sidewalk.

46. Buildings are to be generally sited parallel to the public street and along the edges of parks and open spaces. The public faces of these buildings are to align with neighboring buildings in a manner that defines these spaces with a consistent building face lining the street.

47. Non-residential buildings shall, to the greatest extent possible, front onto adjacent streets, be flush with grade and provide an active use at grade in order to promote pedestrian activity.

48. Buildings shall provide active façades that include windows and entry features and, where appropriate, outdoor cafés and restaurants, community services, retail stores and display windows.

49. Street tree planting should form a continuous canopy along the street. Tree species should be selected by the applicable TIRZ/MMD to reinforce the role of the various street hierarchies within the

Public parking garage, South Beach, FL

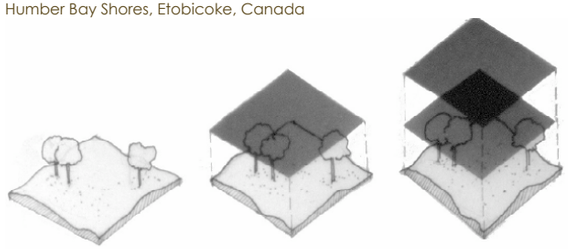
Michigan Ave., Chicago, IL

Pedestrian activity, Toronto, Canada

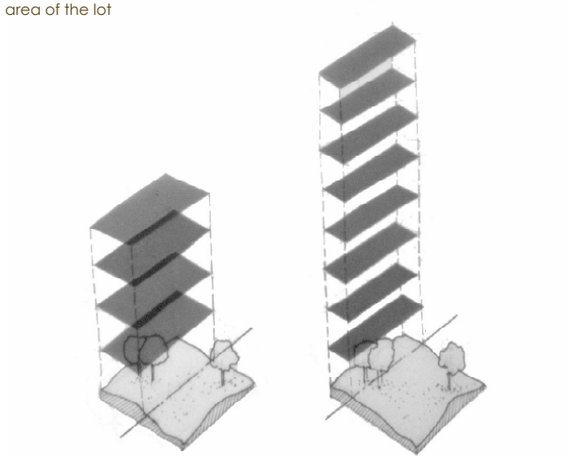
Non-Mandatory

DOA 1 - Design Guidelines

Humber Bay Shores, Etobicoke, Canada



Site, FAR of 1.0 means that the total floor area of a building is one times the gross area of the lot. FAR of 2.0 means the floor area is two times the gross area of the lot



Cover 50% of the lot, at FAR of 2.0 and the building is 4 stories. Cover 25% of the lot at 2.0 and the building is 8 stories.

Urban Corridors and to visually and thematically distinguish the Urban Corridors from one another. In instances where no TIRZ/MMD exists, the City will select the trees that they will plant.

50. Street trees should have a minimum size of 45 gal. and be planted 30' on-center. Trees should be located in open planting pits where space permits and with wells sized at a minimum of 5'x10'. The planting pits should be filled with shrubs, perennials and annual plants. Planting pits should be edged with a low wall and/or fence.

51. Where space is limited, trees should be planted in continuous trenches. The rootball should be protected with a tree grate, ground cover or material such as gravel.

52. Where there is no room for street trees, consider a vertical shade element planted with vines to add special landscape treatment to the street.

53. Coordination of utilities, especially overhead power lines will be required during the design phase of street tree planting.

54. Consider a palette of the street furnishings, newspaper boxes, notice boards, bicycles racks, flower pots, luminaires and poles that will visually and thematically distinguish the each particular Urban Corridor from the others.

55. Concentrate mailboxes, vending machines, trash cans, and recycling bins in single locations to create active public space and minimize visual clutter.

Public Parks

56. Provide public amenities such as washrooms and field house where appropriate.

57. Provide programmed activities for a range of ages and demographics with emphasis on children and youth.

58. Provide a balance of passive and active park space and provide for the maximum program flexibility in the design of the parks.

59. Incorporate a greening strategy that includes tree planting and seasonal horticultural displays.

60. Incorporate sustainability practices both in terms of capital projects and operations.

61. Provide wayfinding and program information displays as well as heritage interpretation and public art.

Gateways

62. Gateways shall be either architectural, stand-alone features, or landscape treatments that define the main entrances to the Urban Corridors.

63. Features shall be lit to enhance their legibility at night.

64. The scale of the gateway shall be large enough to be visible from a car at a distance of at least 300'.

65. Gateways shall enhance and not compete with surrounding existing architectural and natural features.

Buildings

66. Corner building designs shall articulate, define and enhance the intersection at which it is located by enhancing the building's presence at each corner.

67. Buildings should 'turn' the corner, i.e. they should have primary, articulated façades towards both streets and should be visually different from adjacent development.

68. Large areas and continuous rows of monotonous and repetitive façades shall be avoided. A more textured architectural quality can be achieved by introducing variation in certain elements of the façade treatment.

69. Variation in three-dimensional elements, such as

DOA 1 - Design Guidelines

Non-Mandatory

balconies, bay windows and porches, cornices, window trim, entrances and the articulation of the building mass, shall be used to create a dynamic façade.

70. Variation and articulation in the building mass including horizontal and vertical setbacks, such as step backs at the upper stories, shall be established.

71. A pedestrian weather protection system including awnings, canopies, colonnades, or front porches along the sidewalk edges and adjacent to the urban squares/plazas and at entrances to buildings shall be considered. The City will promote Temporary or Permanent Encroachment Permits for both signage and awnings.

Signage and Lighting

72. Signage will address the amount and type of illumination, size, materials, typography and design.

73. Signage should be an integral part of the architecture of a building.

74. Signs should be designed to complement the building and enhance the visual appeal of the street.

75. Signs should be designed in consideration of nearby residential uses, in terms of size, materials, and location.

76. The ratio of sign band to building mass should be restricted such that the signage does not dominate the façade.

77. Mobile box signage is not allowed.

78. Neon lights are allowed when they do not dominate the signage and have no negative impacts on nearby residences.

79. Exterior lighting shall be designed to promote pedestrian comfort, safety and provide a high quality ambiance. In addition, accent lighting is required to emphasize built form and landscape elements. Pedestrian scale lighting shall be provided adjacent to streets, walkways, pedestrian routes, and in parks and courtyards.

80. Internally lit canopies are strongly discouraged.

81. Commercial façades should be appropriately lit.

82. Pedestrian realm signage and lighting should be coordinated. Pole mounted pedestrian light fixtures with a light source at 12 to 15' high and a spacing of 30 to 50' is recommended.

Mid-Block Pedestrian Connections

83. Mid-block pedestrian connections shall be provided within larger development parcels. These are intended to be designed as pedestrian landscaped lanes and should be lit, landscaped and maintained for public.

84. Mid-block pedestrian connections shall provide a fine grain of pedestrian circulation and an important connection between two streets.

85. Mid-block pedestrian connections shall lead to public destinations such as schools, parks and public transit stations.

86. Mid-block pedestrian connections shall provide an address to individual residential or business frontages along their lengths.

Pedestrian weather protection, Bethesda, ML

Signs, Winter Park, CO

Mid-block pedestrian connection, Houston, TX

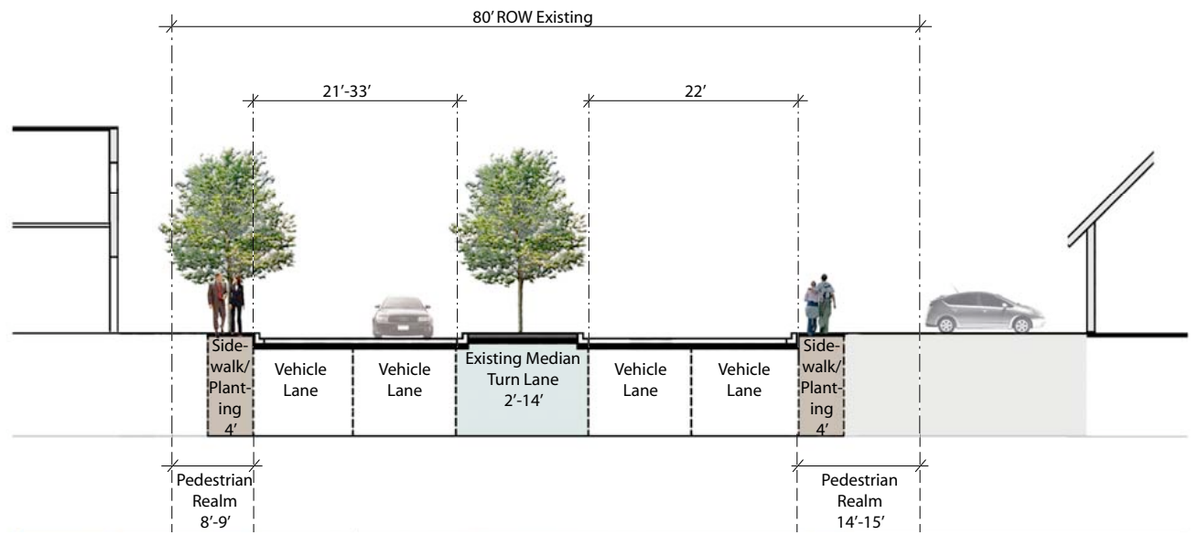
F2.5.1.a
Pedestrian Character Transit Street

To better understand the urban design impact of the new transit on the existing streetscapes, sections have been developed through various locations along the Corridor illustrating the existing condition of the street between buildings façades. A section showing the new streetscape has been constructed as a comparison.

The sections have been selected to indicate typical conditions on the Transit Street to show the impact of the LRT. Additional sections have been developed to illustrate the connecting streets and indicate both existing conditions and proposed improvements with a high level of attention to the pedestrian realm. The importance of these streets as primary pedestrian ways cannot be overstated. These streets are envisioned as the principle links between the Transit Street and the surrounding neighborhoods as well as the location of bus routes.

The sections that have been selected to illustrate typical conditions in the University Corridor are at key locations on Harrisburg Boulevard. The first is taken at Harrisburg Boulevard and Hutcheson Street. As can be seen in the image, the existing street accommodates four lanes of traffic in an 80' right of way. For the most part the sidewalks are 4' wide and discontinuous. Buildings are low and set back from the street. The new street will continue to carry four lanes of traffic but with an LRT line in the middle of the street. The stations are between the two lines at this point and the pedestrian realm is 15' wide and is continuous. Locating buildings at the edge of the pedestrian realm generates a strong pedestrian zone along the street.
The second condition is located at Harrisburg and Grace Street. The existing condition is an example of a narrow street with buildings in close proximity to the street edge. In this case, the new street will be widened to 76' in width and will accommodate four lanes of traffic with the LRT at the center.

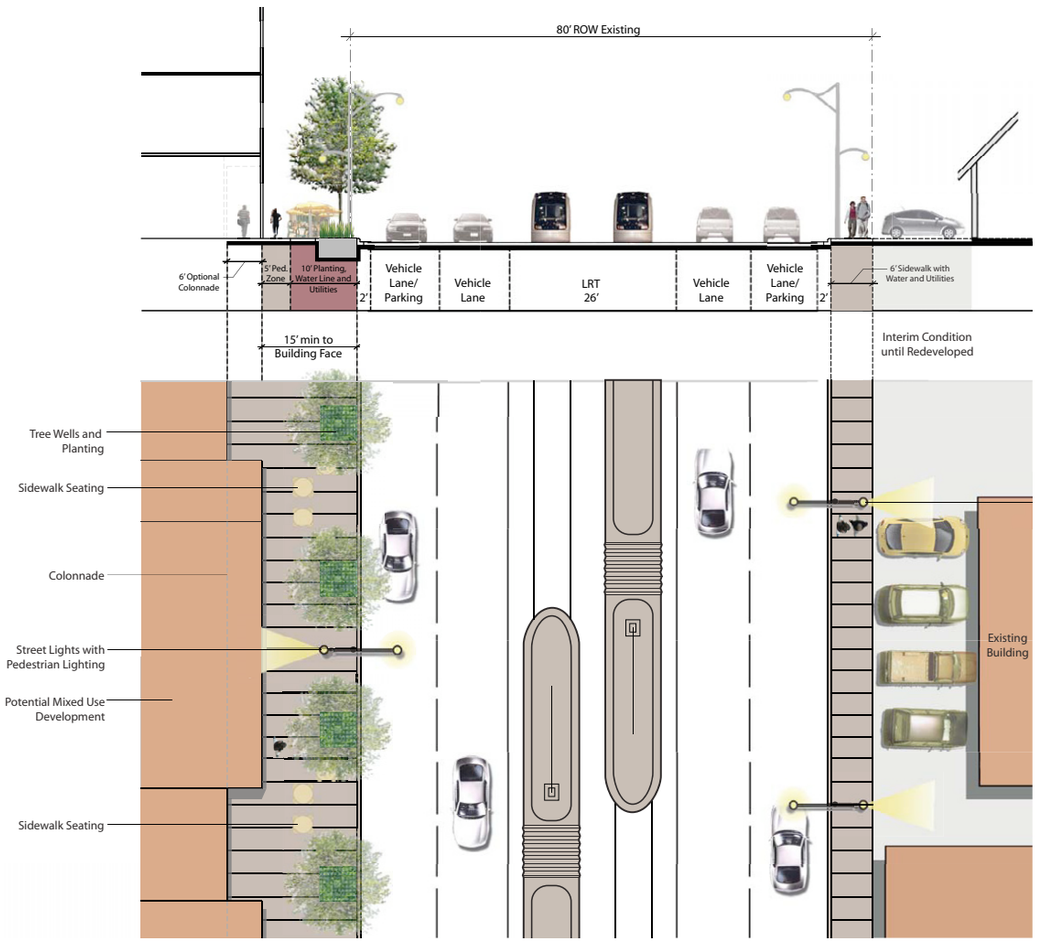
University Corridor Existing Conditions - Richmond Ave. at McDuffie St.



University Corridor Existing Section - Richmond Ave. at McDuffie St.

DOA 1 - Pedestrian Character Transit Street, Offset Station Platforms

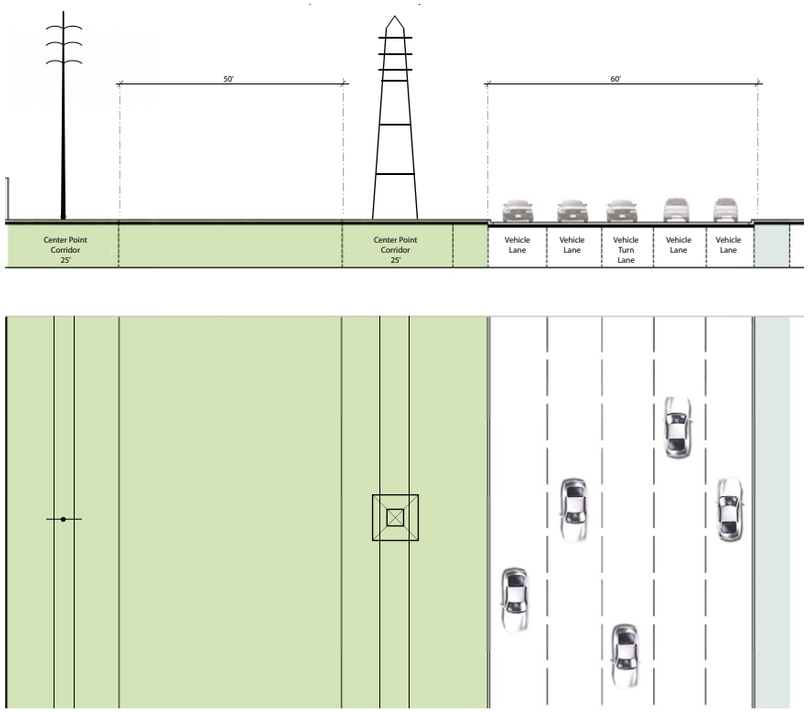
University



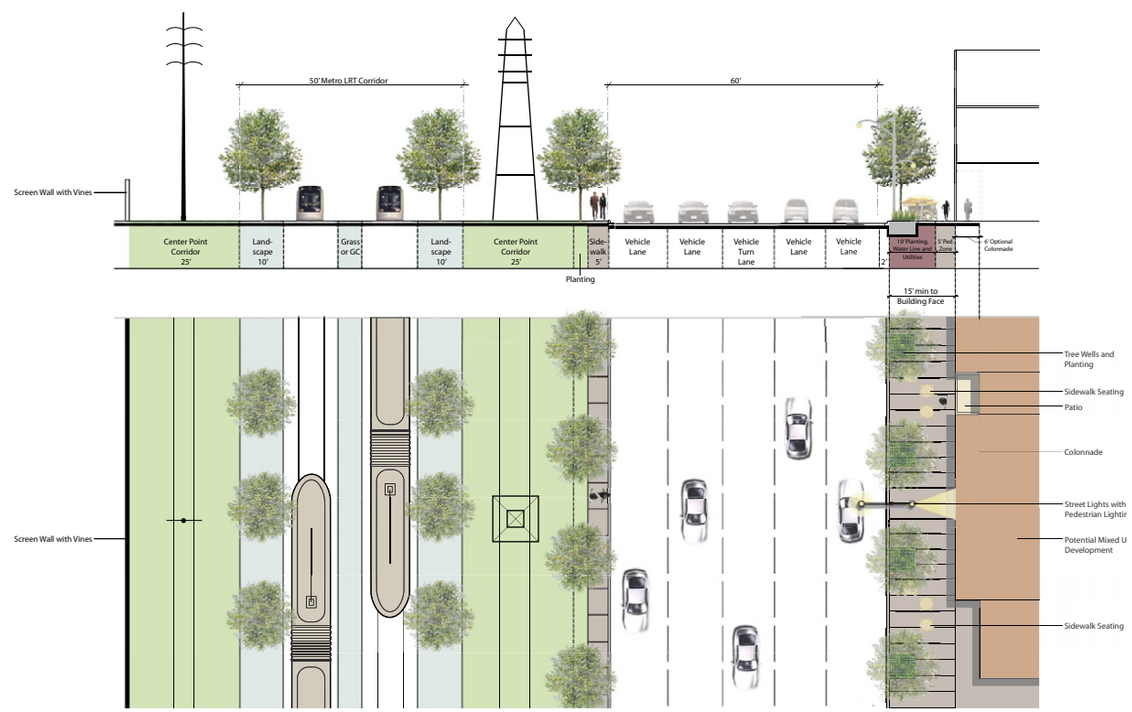
University Corridor Proposed Interim Section - Richmond Ave. at McDuffie St.

University Corridor Photomontage Illustrating Proposed Section - Richmond Ave. at McDuffie St.

University Corridor Existing Conditions- Westpark Dr. near Academy

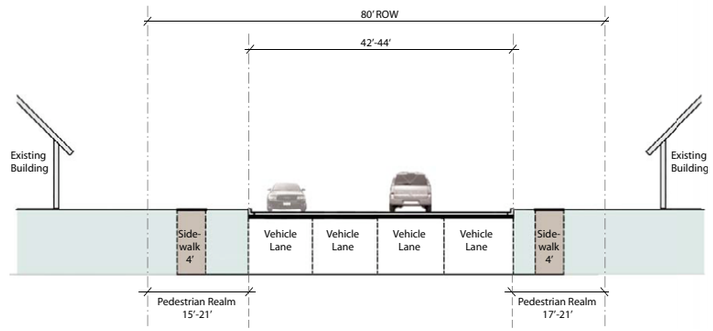


University Corridor Existing Section - Westpark Dr. near Academy St.



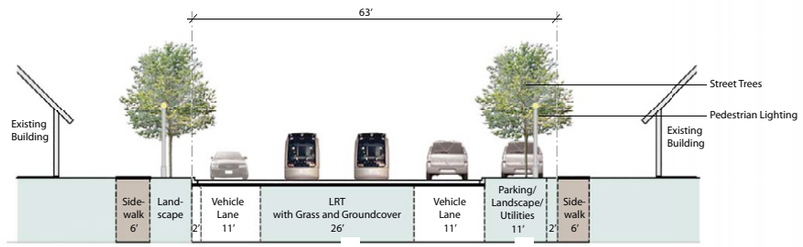
University Corridor Proposed Section - Westpark Dr. near Academy St.

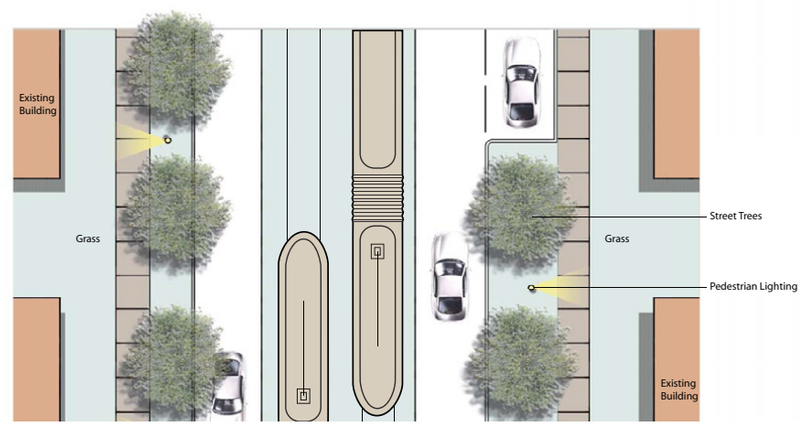
University Corridor Existing Conditions - Wheeler St. at Delano St.



University Corridor Existing Section - Wheeler St. at Delano St.

University Corridor Photomontage Illustrating Proposed Section - Wheeler St. at Delano St.





University Corridor Proposed Section - Wheeler St. at Delano St.

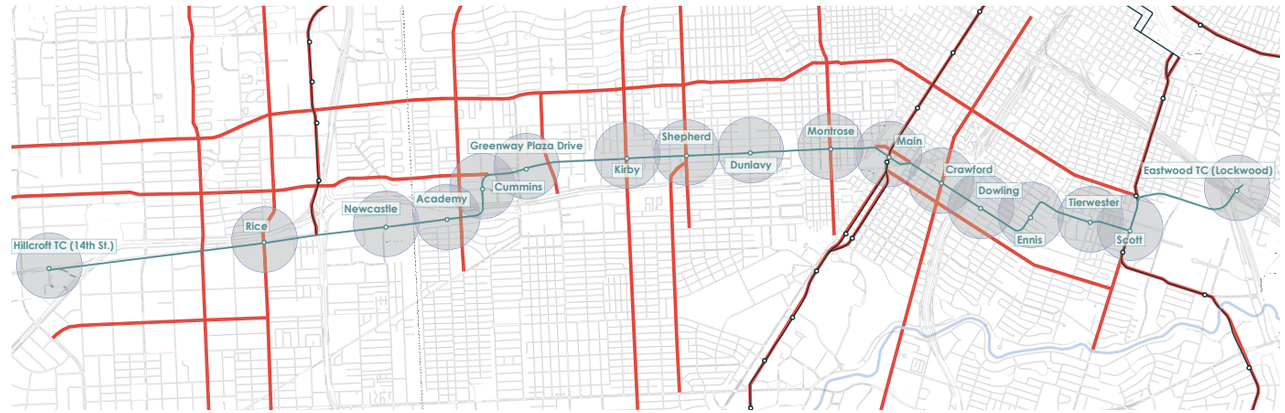
F2.5.1.b
Pedestrian Character Major Thoroughfare

87. The hard surface of the sidewalk (the pedestrian realm) shall be a minimum of 15' wide, measured from the back-of-curb to the main front wall and/or exterior side wall of any adjacent building. This requirement may include components of the public right-of-way and/or private lands, as described in the discussion of the build-within zone.

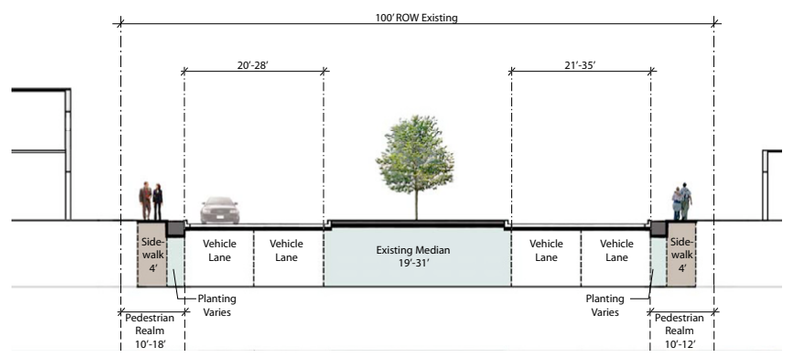
88. The design of the 15' pedestrian realm shall include a "furnishing zone" for utilities, street furniture and street lighting adjacent to the curb, and a minimum 7', 6" unimpeded pedestrian sidewalk.

89. At all street intersections there shall be provisions for pedestrian crossings of the transit facility, regardless of whether or not the intersection is signalized. In addition, provisions for mid-block pedestrian crossings must be considered at intervals of approximately 300'. There shall never be a condition where distances between pedestrian crossings of the facility exceed 600'. Countdown pedestrian head signals shall be provided for at all signalized crossings.

90. It is understood that the development of the required 15' pedestrian realm will occur over a long period of time, in conjunction with private sector redevelopment projects. In the interim, the City should build a connected sidewalk on the public component of the right-of-way concurrent with the development of the transit facilities. The maximum width of the pedestrian realm in this interim condition shall be 15', to be measured from the back-of-curb to the edge of the right-of-way.



Pedestrian Character Major Thoroughfares



University Corridor Existing Section - Buffalo Speedway

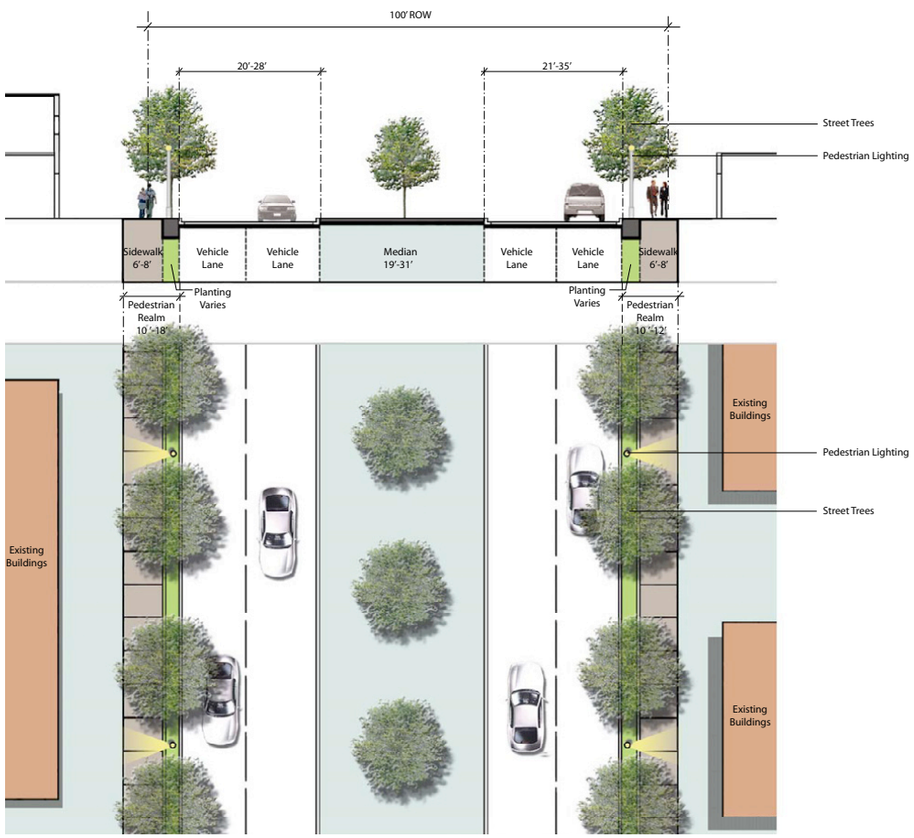
University Corridor Existing Conditions - Buffalo Speedway

University Corridor Existing Conditions - Buffalo Speedway

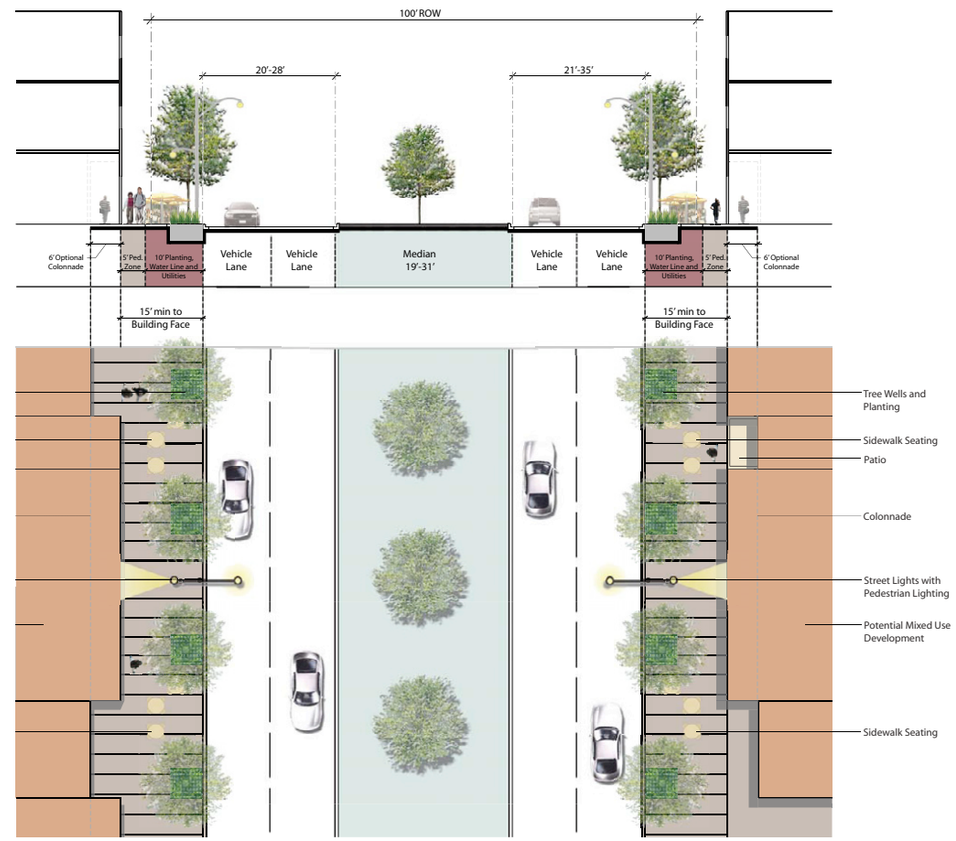
DOA 1 - Pedestrian Character Major Thoroughfare, Commercial and Residential Areas

University

Major Thoroughfare rights-of-way are typically 80 to 100', and include 48' of pavement divided by a median of 14 to 32'. Rarely has a connected sidewalk system been provided. Major Thoroughfares that intersect with the Transit Street have been identified as Pedestrian Character Major Thoroughfares because they have the potential to provide a crucial connection from area focal points, such as neighborhoods and schools, to transit stations. A continuous and connected sidewalk system been provided. A prototype street cross section indicates the following:



University Corridor Proposed Section - Buffalo Speedway (residential areas)



University Corridor Proposed Section - Buffalo Speedway (only in designated redevelopment areas)

Non-Mandatory

DOA 1 - Design Guidelines

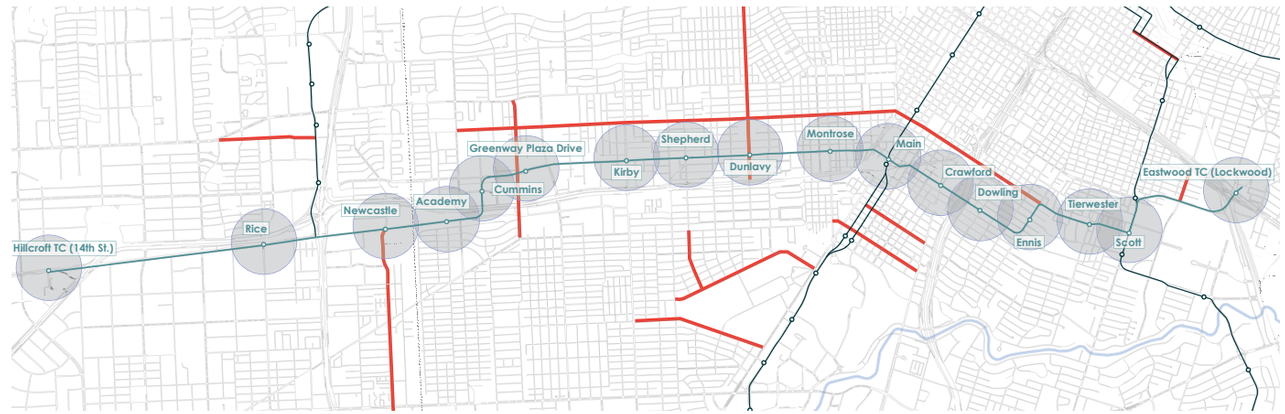
F2.5.1.c
Pedestrian Character Major Collector

91. The pedestrian realm shall be a minimum of 8' wide, measured from the back-of-curb to edge of the right-of-way.

92. The pedestrian realm shall include a minimum 6' wide sidewalk measured from the edge of the right-of-way. The sidewalk shall be continuous and extend across driveways.

93. The pedestrian realm shall include a planted boulevard with street trees next to the curb.

94. The planted boulevard should also be the location for utility poles, placed on the same alignment as the street trees.

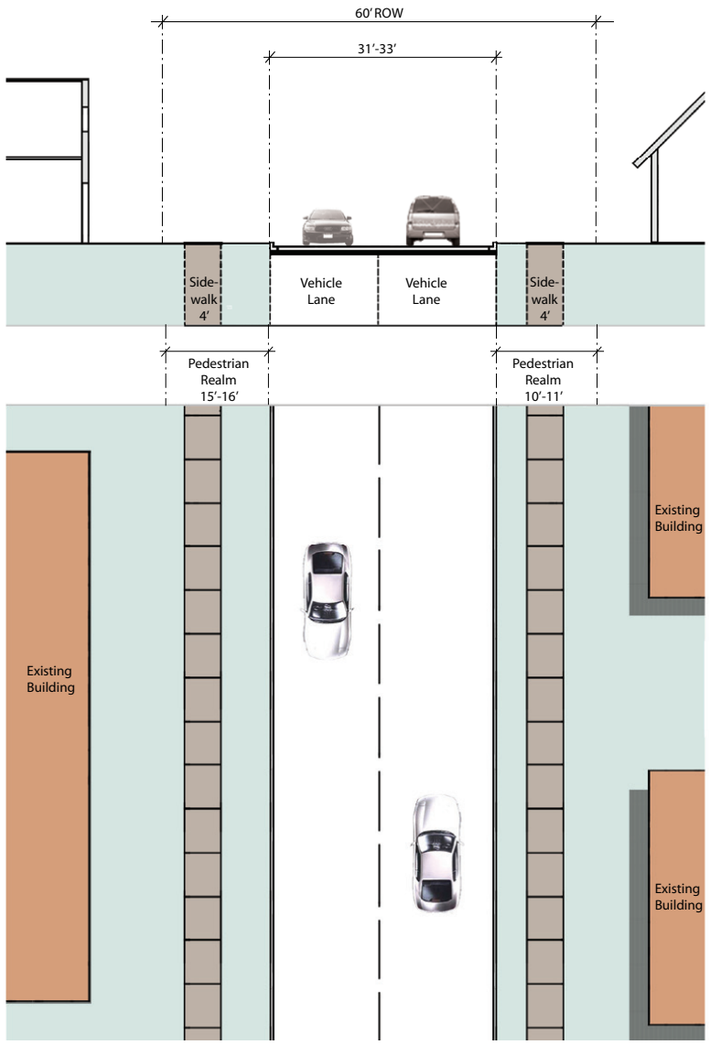


Pedestrian Character Major Collector

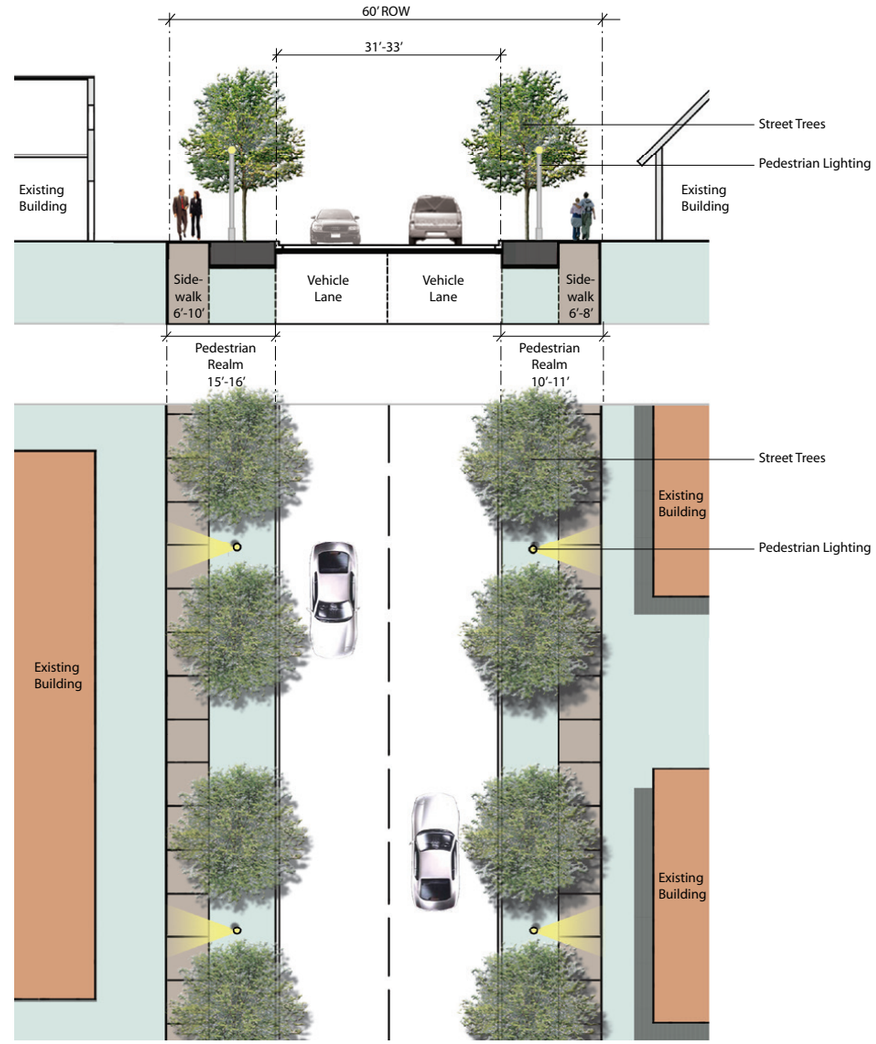
Major Collectors range from 60 - 80', and include 44' of pavement, and ditches on both sides. Rarely is a continuous and connected sidewalk system provided. Canal Street has been identified as a Pedestrian Character Major Collector because it is an important parallel street to the Harrisburg Transit Line and edge to neighborhoods. A prototype street cross section indicates the condition:

University Corridor Existing Conditions - Dunlavy St.

DOA 1 - Pedestrian Character Major Collector University



University Corridor Existing Section - Dunlavy St.



University Corridor Proposed Section - Dunlavy St.

F2.5.1.d
Pedestrian Character Local Street

95. The pedestrian realm shall be a minimum of 19' wide, measured from the back-of-curb or the edge of the outside vehicle lane to the edge of the right-of-way.

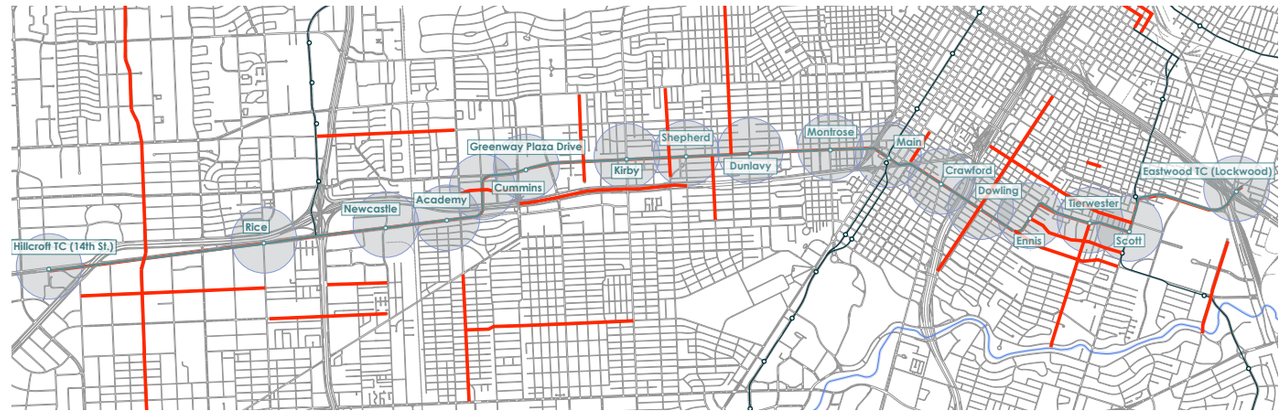
96. The pedestrian realm shall include a minimum 6' wide sidewalk. The sidewalk shall be continuous and extend across driveways.

97. On Pedestrian Character Local Streets with curbs, the pedestrian realm shall include a planted boulevard with street trees next to the curb.

98. The planted boulevard shall also be the location for utility poles, placed on the same alignment as the street trees.

99. On Pedestrian Character Local Streets with road side ditches, the tree shall be planted on the outside edge of the ditch adjacent to the sidewalk.

100. On Pedestrian Character Local Streets with road side ditches, utility poles shall be placed adjacent to the edge of the right-of-way.



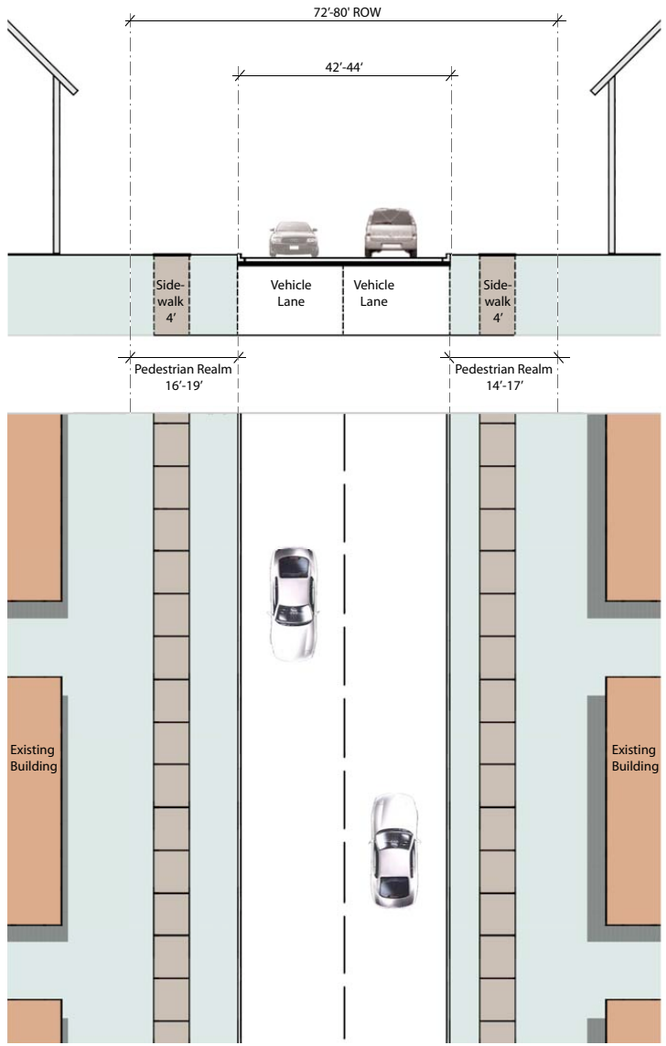
Pedestrian Character Local Street

Local street rights-of-way are typically 60', and include 22' of pavement. Some local streets have ditches on both sides. Rarely are sidewalks provided. Some local streets that intersect with the Transit Street have been identified as Pedestrian Character Local Streets because they have the potential to provide a crucial connection between the transit stations and a local pedestrian traffic generator, such as a school, recreation center, public park or place of worship. Fountain View Drive and Dowling Street have been added to the City's list, due their current and future potential of becoming Pedestrian Character Local Streets. A prototype street cross section for a Pedestrian Character Local Street with and without a ditch indicates the following:

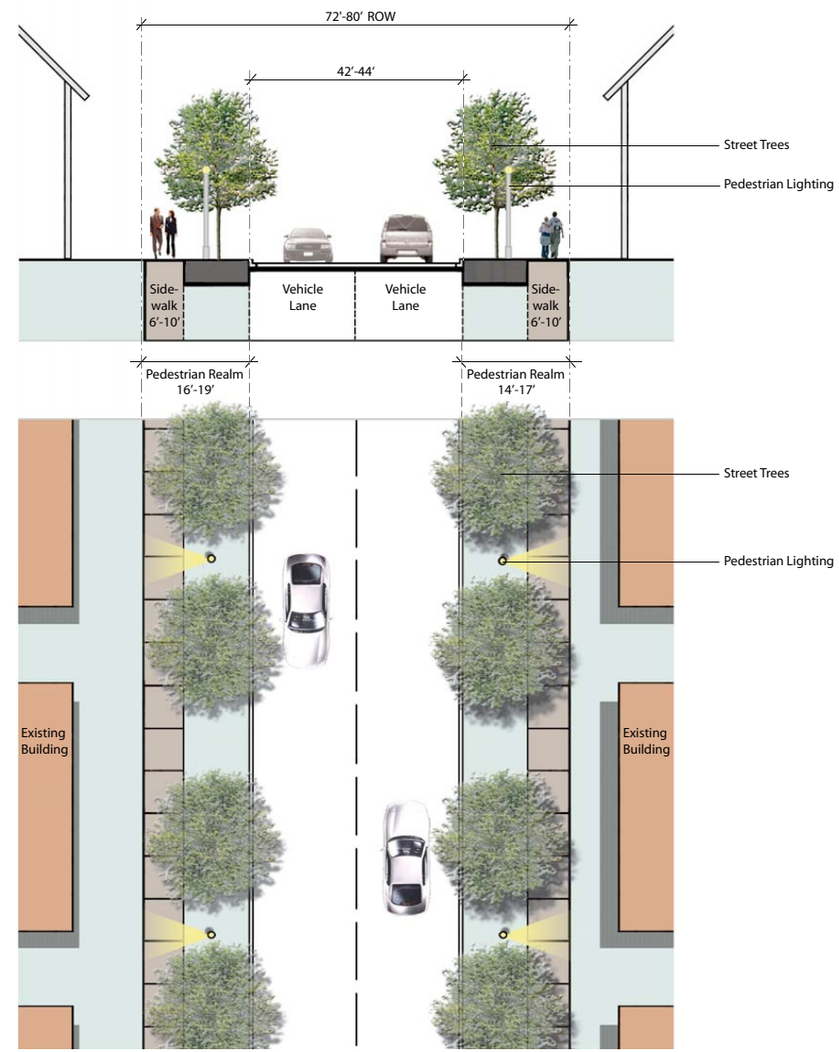
University Corridor Existing Conditions - Woodhead St.

Pedestrian Character Local Street Cross Section/Plan

University



University Corridor Existing Section - Woodhead St.



University Corridor Proposed Section - Woodhead St.

Non-Mandatory

DOA 1 - Design Guidelines

Engineering / Infrastructure

101. The width of travel lanes along streets with transit should generally be 10-11' in width,

102. Alleys should be designed to provide a 12'-0" paved surface,

103. No access should be allowed from the street for new developments fronting onto the street with transit,

104. All new development fronting on to streets with transit should indicated space for the provision of alleys or access to the site from side streets.

105. A plan for access to sites fronting onto the Transit Street should be developed by the proponent before construction of the Transit Line showing the following:

- The preferred location for access into site along the line.
- A phasing plan for combined access over time.
- A phasing plan for the implementation of alleys or service lanes.

106. Provision for crosswalks between stations should be an integral part of the design of the streets with transit. The maximum distance between a station and a crosswalk shall be 1/4 of a mile.

107. The radius of corner conditions should be determined with the pedestrian in mind. Tighter radii corners slow traffic speeds and protect pedestrians.

- Along the streets with transit corner radii for through streets should be no more then a 25'-0" radius.
- For non-through streets intersecting the Transit Street corner, radii should be reduced to 20'-0".

108. Bicycle lanes should be explored as part of the design, access and phasing plans for the corridor streets. Where there is not enough room for bike lanes on Transit Streets, they should be part of the design of the connector streets that access stations.

109. Infrastructure services need to be developed with future intensification of the corridors in mind,

110. Infrastructure should be implemented as transit is being built.

111. The implementation and design of infrastructure should be carried out comprehensively by including all departments of the City, as well as utility providers.

112. All utilities should be buried along the corridors.

113. Consideration should be given to burying utilities under alleys.

114. Where it is impossible to bury utilities, the location of above ground components must be coordinated with the design of the pedestrian realm following the following guidelines:

- Utility poles and transformers shall be located where they do not impact on the movement of pedestrians.
- Utility poles and transformers shall be located according to an overall plan for the entire corridor.
- The form and design of above grade components to be approved by the City and Metro.

115. Accessibility should be designed into all sidewalk conditions along the corridors.

F2.5.2 Development Opportunity Area 2 Downtown

Guidelines within the Development Opportunity Area 2- Downtown include a combination of mandatory development requirements and optional design guides.

Mandatory

Mandatory Development Requirements within the defined Development Opportunity Area 2.

Statement of Application: Applies everywhere within the defined Development Opportunity Area 2 - Downtown

Pedestrian Realm

1. All buildings, with the exception of street facing townhouses, shall be developed with a substantial portion of their front and exterior side façades between 15 and 25' of the back-of-curb. It is understood that where a parcel has three sides abutting a public street, the build-within concept may not be achieved on the third side.
2. In all Transit Street Configurations, 15' from the back-of-curb is required for the pedestrian realm.
3. On all lands fronting onto a public street, a Major Thoroughfare and/or a Major Collector, the minimum built frontage requirement shall be 75% of the parcel frontage and shall be occupied by the main front wall of a building within the build-within zone.
4. Notwithstanding the requirements for a minimum built frontage, where a publicly accessible and usable open space is provided abutting a front and/or exterior side parcel line, the frontage occupied by the publicly accessible and usable open space shall be counted toward the minimum built frontage requirement.
5. A minimum of 75% of the main front wall shall be at grade and, on a corner parcel, an exterior side wall at grade of any non-residential building shall consist of windows and entranceways that facilitate visibility into the building.
6. The City shall not accept cash-in-lieu of required street trees, unless a substantiated technical reason is provided that precludes street tree planting. Where cash-in-lieu of street trees is accepted, the monies received shall be utilized in coordination with the Parks and Recreation Master Plan to enhance tree cover in a local public park, or along the Transit Street within 1/4 of a mile of the development site from which the cash-in-lieu of street trees was accepted.

Development Blocks

7. For all large scale Transit Oriented Development projects (defined as projects on development blocks or parcels that are greater than 5 acres in size), the maximum development block or parcel size shall be approximately 5 acres in area. In all cases, there shall be no minimum development block or parcel area.
8. No development block or parcel frontage on a street shall exceed 600'. In all cases, the minimum development block or parcel frontage shall be 25'.
9. Large scale Transit Oriented Development projects shall provide public streets, or publicly accessible private streets, to subdivide any development block or parcel greater than 5 acres in size into smaller development blocks or parcels in accordance with this policy.

Buildings

10. Buildings of up to three stories may be built with zero setbacks to interior side parcel lines. Exterior side yards shall conform to the described build-within zones.
11. Buildings above three stories may include a zero interior side yard setback for the base building of three stories, but building side walls must be set back a minimum of 10' from the interior side yards for that component of the building above three stories.
12. The City will encourage a transitional rear alley or easement process, coupled with access management from pedestrian and Transit Streets, on a block-by-block basis, where possible and appropriate.

Encroachments

13. Permanent encroachments shall be considered for permitting on a site-by-site basis, subject to design performance standards (to be developed) that consider such features as shade / weather protection, pedestrian clear zone width, space for street tree canopy, right-of-way proportions, utility clearances, etc.
14. The amount of any permitted encroachment shall be established by the City on a site-by-site basis, and in consideration of the following criteria: the encroachment enhances pedestrian comfort by providing shade and/or protection from the rain; and, the encroachment does not impede pedestrian movement, and maintains an unobstructed sidewalk area of a minimum width of 5'.

Non-Mandatory

Non-Mandatory Development Guidelines within the defined Development Opportunity Area 2.

Pedestrian Realm

15. Buildings shall be connected to the street - by proximity, by the location of windows and entranceways, and the level of architectural detail.

16. Buildings shall be sited and organized to create a street space scaled to the pedestrian, and organized to present an appropriate façade to all adjacent streets to provide interest and comfort at ground level for pedestrians.

17. Main building entrances shall, wherever possible, be oriented toward adjacent streets to provide convenient access to pedestrians and public transit; buildings, and their main public entrances, shall be located close to the front and exterior side property lines, on-street parking, and the public sidewalk.

18. Buildings are to be generally sited parallel to the public street and along the edges of parks and open spaces. The public faces of these buildings are to align with neighboring buildings in a manner that defines these spaces with a consistent building face lining the street.

19. Non-residential buildings shall, to the greatest extent possible, front onto adjacent streets, be flush with grade and provide an active use at grade in order to promote pedestrian activity.

20. Buildings shall provide active façades that include windows and entry features and, where appropriate, outdoor cafés and restaurants, community services, retail stores and display windows.

21. Street tree planting should form a continuous canopy along the street. Tree species should be selected by the applicable TIRZ/MMD to reinforce the role of the various street hierarchies within the Urban Corridors and to visually and thematically distinguish the Urban Corridors from one another. In instances where no TIRZ/MMD exists, the City will select the trees that they will plant.

22. Street trees should have a minimum size of 45 gal. and be planted 30' on-center. Trees should be located in open planting pits where space permits and with wells sized at a minimum of 5'x10'. The planting pits should be filled with shrubs, perennials and annual plants. Planting pits should be edged with a low wall and/or fence.

23. Where space is limited, trees should be planted in continuous trenches. The rootball should be protected with a tree grate, ground cover or material such as gravel.

24. Where there is no room for street trees, consider a vertical shade element planted with vines to add special landscape treatment to the street.

25. Coordination of utilities, especially overhead power lines will be required during the design phase of street tree planting.

26. Consider a palette of the street furnishings, newspaper boxes, notice boards, bicycles racks, flower pots, luminaires and poles that will visually and thematically distinguish the each particular Urban Corridor from the others.

27. Concentrate mailboxes, vending machines, trash cans, and recycling bins in single locations to create active public space and minimize visual clutter.

Public Parks

28. Provide public amenities such as washrooms and field house where appropriate.

29. Provide programmed activities for a range of ages and demographics with emphasis on children and youth.

30. Provide a balance of passive and active park space and provide for the maximum program flexibility in the design of the parks.

31. Incorporate a greening strategy that includes tree planting and seasonal horticultural displays.

32. Incorporate sustainability practices both in terms of capital projects and operations.

33. Provide wayfinding and program information displays as well as heritage interpretation and public art.

Gateways

34. Gateways shall be either architectural, stand-alone features, or landscape treatments that define the main entrances to the Urban Corridors.

35. Features shall be lit to enhance their legibility at night.

36. The scale of the gateway shall be large enough to be visible from a car at a distance of at least 300'.

37. Gateways shall enhance and not compete with surrounding existing architectural and natural features.

Buildings

38. The minimum density for any Transit Oriented Development project shall be a Floor Area Ratio of 1.75.

39. There shall be no specified maximum density.

40. The minimum height for any Transit Oriented Development building shall be 3 stories, or 27', whichever is greater. Buildings on corner sites shall be a minimum of 4 stories, or 36', whichever is greater.

DOA 2 - Downtown Non-Mandatory

41. There shall be no specific height limit.

42. Corner building designs shall articulate, define and enhance the intersection at which it is located by enhancing the building's presence at each corner.

43. Buildings should 'turn' the corner, i.e. they should have primary, articulated façades towards both streets and should be visually different from adjacent development.

44. Large areas and continuous rows of monotonous and repetitive façades shall be avoided. A more textured architectural quality can be achieved by introducing variation in certain elements of the façade treatment.

45. Variation in three-dimensional elements, such as balconies, bay windows and porches, cornices, window trim, entrances and the articulation of the building mass, shall be used to create a dynamic façade.

46. Variation and articulation in the building mass including horizontal and vertical setbacks, such as step backs at the upper stories, shall be established.

47. A pedestrian weather protection system including awnings, canopies, colonnades, or front porches along the sidewalk edges and adjacent to the urban squares/plazas and at entrances to buildings shall be considered. The City will promote Temporary or Permanent Encroachment Permits for both signage and awnings.

Signage

48. Signage will address the amount and type of illumination, size, materials, typography and design.

49. Signage should be an integral part of the architecture of a building.

50. Signs should be designed to complement the building and enhance the visual appeal of the street.

51. Signs should be designed in consideration of nearby residential uses, in terms of size, materials, and location.

52. The ratio of sign band to building mass should be restricted such that the signage does not dominate the façade.

53. Mobile box signage is not allowed.

54. Neon lights are allowed when they do not dominate the signage and have no negative impacts on nearby residences.

55. Exterior lighting shall be designed to promote pedestrian comfort, safety and provide a high quality ambiance. In addition, accent lighting is required to emphasize built form and landscape elements. Pedestrian scale lighting shall be provided adjacent to streets, walkways, pedestrian routes and in parks and courtyards.

56. Internally lit canopies are strongly discouraged.

57. Commercial façades should be appropriately lit.

58. Pedestrian realm signage and lighting should be coordinated. Pole mounted pedestrian light fixtures with a light source at 12 to 15' high and a spacing of 30 to 50' is recommended.

Mid-Block Pedestrian Connections

59. Mid-block pedestrian connections shall be provided within larger development parcels. These are intended to be designed as pedestrian landscaped lanes and should be lit, landscaped and maintained for public.

60. Mid-block pedestrian connections shall provide a fine grain of pedestrian circulation and an important connection between two streets.

61. Mid-block pedestrian connections shall lead to public destinations such as schools, parks and public transit stations.

62. Mid-block pedestrian connections shall provide an address to individual residential or business frontages along their lengths.

Parking

63. General public parking (surface lots and / or structured parking facilities) to serve TOD areas will be provided to augment the supply of parking.

64. On-street parking shall be promoted within all of the Urban Corridors.

65. The City shall pursue opportunities for the establishment of on-street parking in partnership with adjacent landowners where the spaces are provided on a combination of public land and private property, with public access to the parking spaces secured through agreements with the City.

66. Surface parking, loading areas, drive-through lanes and servicing facilities shall not be permitted in front of Transit Oriented Development buildings. Surface parking, drive-through lanes and/or servicing facilities may be permitted in an interior side yards, and are permitted within the rear yard.

67. Surface parking, loading areas, drive-through lanes and servicing facilities, where permitted, shall be appropriately screened from view from the street. Surface parking lots shall respect the build-within zones. Where surface parking must be provided, the visual impact of large surface lots shall be mitigated by a combination of setbacks, and significant landscaping including: pavement treatments, low walls or decorative fencing, landscape, trees and lighting throughout parking lots and along the edges.

Non-Mandatory DOA 2 - Downtown

68. Parking is encouraged to be provided in structures, either above, or where possible, below grade. Where a parking structure is above grade, it shall include a façade with active uses at grade and appropriate architectural articulation. Entrances to below grade or structured parking and service areas should occur within the building.

69. Access to parking and servicing areas should occur off side streets or service lanes and to the side or rear of buildings, where possible.

70. It is an objective of the City to limit access driveways to individual sites adjacent to the Transit Street. The City shall encourage shared access driveways and, preferably, shared rear lane access for all Transit Oriented Development. Where new development is proposed, the City shall require a minimum of 100' between access driveways onto the Transit Streets.

Pedestrian Character Major Thoroughfare

71. The hard surface of the sidewalk (the pedestrian realm) shall be a minimum of 15' wide, measured from the back-of-curb to the main front wall and/or exterior side wall of any adjacent building. This requirement may include components of the public right-of-way and/or private lands, as described in the discussion of the build-within zone.

72. The design of the 15' pedestrian realm shall include a "furnishing zone" for utilities, street furniture and street lighting adjacent to the curb, and a minimum 7', 6" unimpeded pedestrian sidewalk.

73. At all street intersections there shall be provisions for pedestrian crossings of the transit facility, regardless of whether or not the intersection is signalized. In addition, provisions for mid-block pedestrian crossings must be considered at intervals of approximately 300'. There shall never be a condition where distances between pedestrian crossings of the facility exceed 600'. Countdown pedestrian head signals shall be provided for at all signalized crossings.

74. It is understood that the development of the required 15' pedestrian realm will occur over a long period of time, in conjunction with private sector redevelopment projects. In the interim, the City should build a connected sidewalk on the public component of the right-of-way concurrent with the development of the transit facilities. The maximum width of the pedestrian realm in this interim condition shall be 15', to be measured from the back-of-curb to the edge of the right-of-way.

Pedestrian Character Major Collector

75. The pedestrian realm shall be a minimum of 8' wide, measured from the back-of-curb to edge of the right-of-way.

76. The pedestrian realm shall include a minimum 6' wide sidewalk measured from the edge of the right-of-way. The sidewalk shall be continuous and extend across driveways.

77. The pedestrian realm shall include a planted boulevard with street trees next to the curb.

78. The planted boulevard should also be the location for utility poles, placed on the same alignment as the street trees.

Pedestrian Character Local Street

79. The pedestrian realm shall be a minimum of 19' wide, measured from the back-of-curb or the edge of the outside vehicle lane to the edge of the right-of-way.

80. The pedestrian realm shall include a minimum 6' wide sidewalk. The sidewalk shall be continuous and extend across driveways.

81. On Pedestrian Character Local Streets with curbs, the pedestrian realm shall include a planted boulevard with street trees next to the curb.

82. The planted boulevard shall also be the location for utility poles, placed on the same alignment as the street trees.

83. On Pedestrian Character Local Streets with road side ditches, the tree shall be planted on the outside edge of the ditch adjacent to the sidewalk.

84. On Pedestrian Character Local Streets with road side ditches, utility poles shall be placed adjacent to the edge of the right-of-way.

Engineering/Infrastructure

85. The width of travel lanes along streets with transit should generally be 10-11' in width,

86. Alleys should be designed to provide an 12'-0" paved surface,

87. No access should be allowed from the street for new developments fronting onto the street with transit,

88. All new development fronting on to streets with transit should indicated space for the provision of alleys or access to the site from side streets.

89. A plan for access to sites fronting onto the Transit Street should be developed by the proponent before construction of the Transit Line showing the following:

- The preferred location for access into site along the line.
- A phasing plan for combined access over time.
- A phasing plan for the implementation of alleys or service lanes.

90. Provision for cross walks between stations should be an integral part of the design of the streets with transit. The maximum distance between a Station and a crosswalk shall be 1/4 of a mile.

91. The radius of corner conditions should be determined

with the pedestrian in mind. Tighter radii corners slow traffic speeds and protect pedestrians.

- Along the streets with transit corner radii for through streets should be no more then a 25'-0" radius.
- For non-through streets intersecting the Transit Street corner, radii should be reduced to 20'-0".

92. Bicycle lanes should be explored as part of the design, access and phasing plans for the corridor streets. Where there is not enough room for bike lanes on Transit Streets, they should be part of the design of the connector streets that access Stations.

93. Infrastructure services need to be developed with future intensification of the Corridor in mind.

94. Infrastructure should be implemented as transit is being built.

95. The implementation and design of infrastructure should be carried out comprehensively by including all departments of the City, as well as utility providers.

96. All utilities should be buried along the Corridor.

97. Consideration should be given to burying utilities under alleys.

98. Where it is impossible to bury utilities, the location of above ground components must be coordinated with the design of the pedestrian realm following the following guidelines:

- Utility poles and transformers shall be located where they do not impact on the movement of pedestrians.
- Utility poles and transformers shall be located according to an overall plan for the entire corridor.
- The form and design of above grade components to be approved by the City and Metro.

99. Accessibility should be designed into all sidewalk conditions along the Corridor.